





fishes
[EXTRACTED FROM THE ANNUAL REPORT OF THE COMMISSIONER
OF FISH AND FISHERIES FOR 1886.]

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U. S. National Museum
LISTS

OF

DREDGING STATIONS 99

IN

NORTH AMERICAN WATERS

FROM

1867 TO 1887.

BY

SANDERSON SMITH.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1888.



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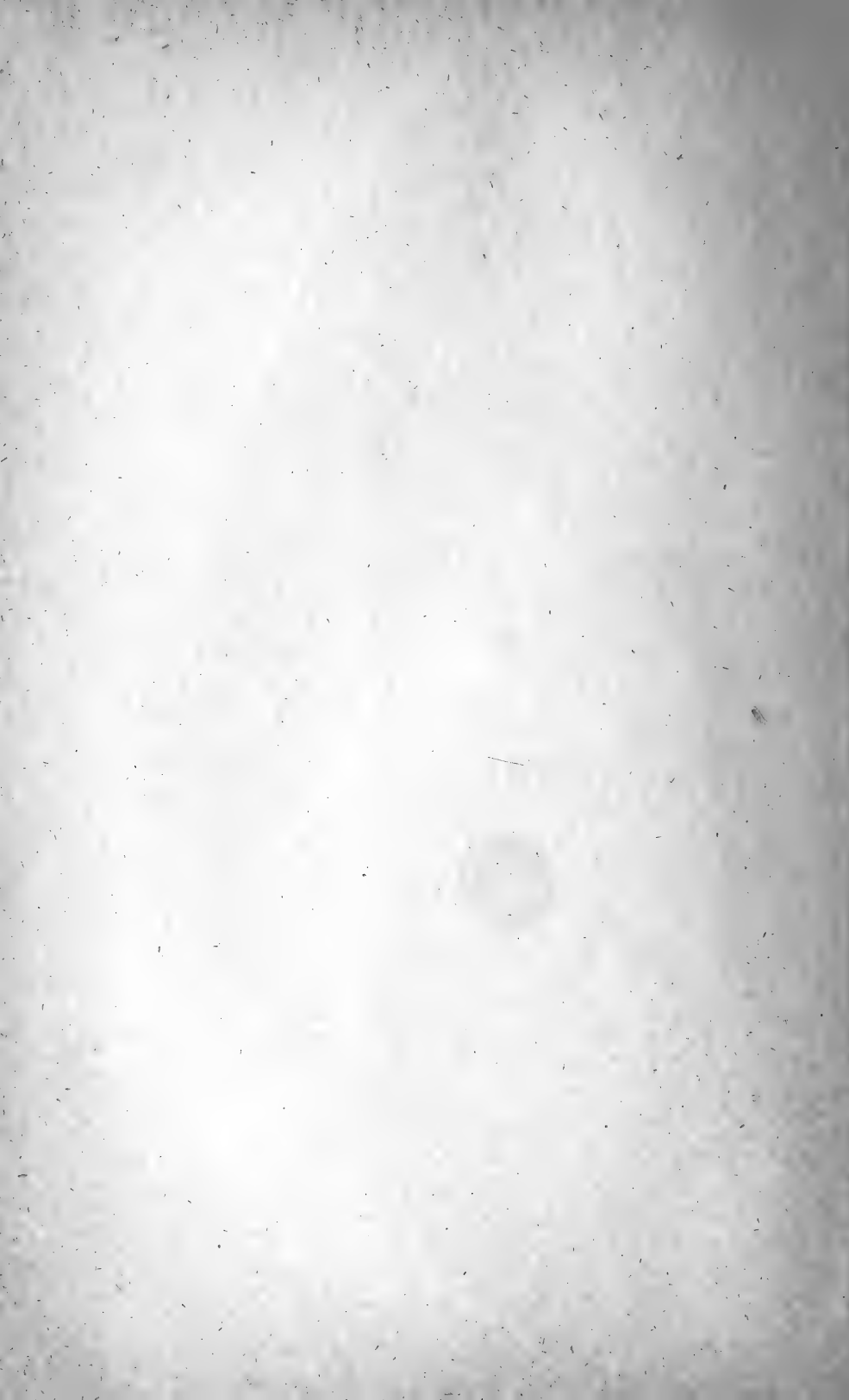


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XXIX.—LISTS OF THE DREDGING STATIONS OF THE U. S. FISH COMMISSION, THE U. S. COAST SURVEY, AND THE BRITISH STEAMER CHALLENGER, IN NORTH AMERICAN WATERS, FROM 1867 TO 1887, TOGETHER WITH THOSE OF THE PRINCIPAL EUROPEAN GOVERNMENT EXPEDITIONS IN THE ATLANTIC AND ARCTIC OCEANS.

PREPARED BY SANDERSON SMITH.

PREFACE.

The records of the dredgings and trawlings executed by the U. S. Fish Commission from 1871 to 1879 were published in the Fish Commission Report for 1879 by the author and Mr. Richard Rathbun; those of the *Fish Hawk* from 1880 to 1882 in the Bulletin of U. S. Fish Commission for 1882, by Mr. Richard Rathbun; those of the *Albatross* from 1883 to 1886 in various volumes of the Fish Commission reports. The dredgings of the *Fish Hawk* from 1883 to 1887 and of the *Albatross* in 1887 have not yet been published.

Although separate copies were printed of the lists from 1871 to 1882, the scattered manner in which most of these lists appeared in various publications and associated with great masses of other material has rendered it very difficult to bring together a complete series of them.

The completion of the accompanying series of charts, on which all the dredging positions of the U. S. Fish Commission, the U. S. Coast Survey, and the British steamer *Challenger* in North American waters are laid down, has rendered it desirable to bring together and complete all these scattered lists, together with those of the Coast Survey and the *Challenger*. The opportunity has at the same time been taken to collect together the records of the dredging operations undertaken by the British, French, Italian, Norwegian, Swedish, and other European Governments in the Atlantic and Arctic, the results of which are of almost as much importance to us as of those carried on upon our own coasts. These are scattered through a great number of works in various languages, and many of them very difficult to find, and have in many cases never been reduced into the form of tables; so that the task of bringing them together and putting them into shape has been a somewhat

laborious one. It has been endeavored to present as nearly complete a set of these records as possible, but no doubt some will be found to have been omitted which ought to have been included. Excepting in the Arctic seas series consisting mainly of shallow-water dredgings, such as those in the Baltic, have not been included. Of other expeditions which have made important dredgings no lists, so far as is known, have ever been published. It will be noticed, also, that the amount of detailed information given in these lists varies very much, some giving only the position, depth, and kind of bottom, whilst others contain full particulars of temperature of air, surface, and bottom, drift, etc. They are here presented essentially as originally published, with some slight changes of arrangement for the sake of uniformity, and with foreign measures or temperatures accompanied with their American equivalents. The sources from which they were derived are, as a rule, stated, but with some exceptions.

A large part of the dredging positions of the Coast Survey were published by Professor Agassiz in the Bulletin of the Museum of Comparative Zoology at Cambridge, Mass. Those of 1867, 1868, and 1869 made by Count Pourtales have, however, been rendered definite by reference to the original charts and records in the Coast Survey Office; those of 1872, made by Dr. William Stimpson, have been added from the same sources, and a few other additions and corrections have been made.

The prefatory notes attached to each, both of the American and foreign lists, will render unnecessary any further explanation of their sources or peculiarities here.

The five large charts accompanying these lists require but little explanation. They relate only to the work of the Fish Commission, Coast Survey, and *Challenger* on and near our Atlantic coast, as it was not found practicable to publish at present charts illustrating the dredgings in other parts of the Atlantic and Arctic, although such have been prepared.

Every dredging made by the Fish Commission or the Coast Survey has been placed upon one or the other of these charts, except where the scale compels their omission or where the position was originally so indefinitely stated as to render it impossible to place it accurately. Of both these classes special lists are given on the charts, pointing out the nearest station which is placed on the chart.

A few words may be added to explain the special objects of the four small charts and sections placed upon the chart of the Caribbean Sea. The little chart of the Gulf of Mexico and the northwestern part of the Caribbean Sea serves to show parts of the Gulf not included on any of the large charts, to give additional contour lines, and to direct attention to the remarkable regions of deep water existing in both seas, and especially to that one marked as the Sigsbee Deep in the Gulf of Mexico. The bottom of this is almost a perfect plain, varying in depth over a

very large area only from 2,000 to 2,050 fathoms, as is shown by the east and west section across the Gulf, which is also given.

The three sections, from the Cultivator Shoal, or George's Bank, from Hatteras, and from Charleston, illustrate the general fact of the very gentle slope of the sea bottom along our eastern coast until the depth of about 100 fathoms is reached and of its very abrupt descent beyond that line, whilst they show the very different distances from shore at which this line is found.

The two sections showing the temperatures in the Mediterranean and the Caribbean Sea illustrate the fact that in a deep basin closed by a barrier of shallower soundings no change of temperature occurs from a depth corresponding with that of the barrier to the very greatest depths. In the Mediterranean the temperature found at a depth of about 120 fathoms, that of the Straits of Gibraltar, is about $57\frac{1}{2}^{\circ}$ Fahr. and does not vary to a depth of more than 2,000 fathoms, whilst in the Caribbean and Gulf of Mexico the deepest channel communicating with the ocean appears to be about 800 fathoms, corresponding to a temperature of $39\frac{1}{2}^{\circ}$ Fahr., and below this depth this temperature is invariably found down to 2,000 fathoms and more. The temperatures marked upon the section of the Gulf of Mexico illustrate this fact more fully.

The other temperature sections show the very rapid diminution of temperature from the surface and the very low temperatures reached in great depths.

As, after the preparation of the chart of the Caribbean Sea, the sections illustrating depths and temperatures were found, when reduced, to be too small for convenient use, enlarged copies of them are given as separate plates, numbered 5a, 5b, and 5c.

The tables of serial temperatures, taken by the *Speedwell*, *Fish Hawk*, and *Albatross*, afford the means of studying these changes of temperature in greater detail. These tables, like those of positions, have been scattered through numerous volumes, and, as requiring the aid of charts for their intelligent use, it has been considered best to bring them together in connection with these.

The hydrographic stations of the *Albatross* having been published for the most part by the Hydrographic Office as well as in the Fish Commission reports, and requiring only very rarely to be referred to by their serial numbers, the lists of them have not been reprinted.

LIST OF CHARTS,

- No. 1. Dredgings of U. S. Fish Commission in Gulf of Maine, Nantucket and Vineyard Sounds.
- No. 2. Dredgings of U. S. Fish Commission in Nantucket, Vineyard, and Long Island Sounds.
- No. 3. Dredgings of U. S. Fish Commission, U. S. Coast Survey, and *Challenger*, from Cape Canaveral, Florida, to the Grand Bank of Newfoundland and the Flemish Cap.
- No. 4. Dredgings of the U. S. Fish Commission and the U. S. Coast Survey in the Gulf of Mexico and adjacent parts of the Atlantic Ocean and the Caribbean Sea. The Florida Reefs are also given as a separate plate of enlarged size, numbered 4a.
- No. 5. Dredgings of the U. S. Fish Commission, U. S. Coast Survey, and *Challenger* in the Caribbean Sea and adjacent parts of the Atlantic Ocean.

[On this chart have been placed four small subsidiary charts and sections, as follows: (1) A small chart of the whole of the Gulf of Mexico, with additional contour lines. (2) A section from east to west across the Gulf of Mexico, with temperatures. (3) Several temperature sections in Atlantic, Caribbean, and Mediterranean. (4) Three sections of the sea bottom, commencing at the Cultivator Shoal, Cape Hatteras, and Charleston, respectively. For further explanations of these subcharts see the preface. In order to render these sections more convenient for use the second, third, and fourth are also given of about four times the size as separate plates, numbered 5a, 5b, and 5c.]

LISTS OF THE DREDGING STATIONS OF THE U. S. FISH
COMMISSION FROM 1871 TO 1879, INCLUSIVE, WITH TEM-
PERATURE AND OTHER OBSERVATIONS.

[Arranged for publication by SANDERSON SMITH and RICHARD RATHBUN.]

The following lists include all the recorded dredging stations made by, or in connection with, the United States Fish Commission, from its organization up to date. The stations are, for the most part, arranged chronologically, and are designated by four series of numbers or letters, as follows: One series of numbers, from 1 V to 87 V, with letters appended, represents the stations for 1871. The 1872 stations (in the Bay of Fundy) are designated by letters from *t* to *z*. Those for 1873 are indicated by a second series of numbers, from 1 to 212, with B. (*Bache*) or Bl. (*Bluelight*) added, according as the dredgings were carried on from the steamers *Bache* or *Bluelight*. In this series, however, are also included the stations of the *Bache* for 1872 and 1874, as well as those for 1873. The last series combines all the stations from 1874 to 1879, inclusive (omitting 1876, during which year sea-work was suspended), in numbers running from 1 to 769. For the sake of obtaining greater uniformity in recording the stations on charts, as explained further on, the stations for 1874 and 1875, originally numbered separately, have been united with those from 1877 to 1879, and given numbers following 1879. The numbers for these later years run as follows: 1874, from 400 to 580; 1875, from 600 to 769; 1877, from 1 to 128; 1878, from 129 to 238; 1879, from 239 to 378.

The stations of the *Speedwell* for 1877, 1878, and 1879 are indicated by numbers only, and are readily distinguished from those of the *Bache* and *Bluelight*, which have B. or Bl. affixed to them. In the following tables the localities given are taken from the original record books, whenever such exist (*i. e.*, for all the work of the *Speedwell* and much of that of the *Bluelight*—101 Bl. to 166 Bl.), with some other notes added to facilitate the finding of the localities on the chart. In many cases the positions were marked, at the time, on the steamers' charts by the commanding officer, and all such positions have been adopted, even though differing somewhat from those given by the record books. From the nature of the operations of dredging and trawling, it becomes almost

impossible to estimate exactly the changes of position caused by currents, etc., especially when out of sight of land, and in a few cases the positions were not placed on the charts at the time, and the bearings given do not suffice to fix them very accurately. It is believed, however, that but few positions are rendered uncertain to any great extent by either of these causes. A large part of the positions determined by the *Bache* were originally given by latitude and longitude. The other latitudes and longitudes given in the tables are intended to serve as the readiest means of finding the localities, all of which are either thus designated or are referred to as being near others which are so. The bearings given for the *Speedwell's* work in 1878 are true; the others, with a few (unrecognizable) exceptions, are magnetic.

In the last column of the tables the letter indicates the apparatus employed in dredging: D., Dredge; Ag. D., Agassiz Dredge; R. D., Rake Dredge; T., Trawl; Ag. T., Agassiz Trawl; O. T., Otter Trawl; Tan., Tangles.

STATIONS FOR 1871, IN AND ABOUT VINEYARD SOUND, MASSACHUSETTS.

During this, the first year of the Commission, the dredgings in shallow water were made partly from a sail-boat and partly from a steam-launch, and those in the deeper waters from the United States revenue-cutter *Moccasin*, Capt. J. G. Baker. The dredging stations numbered in all about 250, but to avoid confusion in laying them out on the chart, they were combined into 87 groups or lines, each including from 2 to 9 stations, the lines being designated by numbers, the stations by letters. In this manner they were represented on the large chart accompanying the Report of the United States Fish Commissioner for 1871-'72. In making up the present list the same arrangement has also been followed, and where all the stations of a group were of the same nature, they have been located collectively; otherwise the exact position of each station has been given.

Dates are not prefixed to all of the inner groups, as many of these include stations made on different days. Temperature observations (with Miller-Casella self-registering thermometers) were taken at most of the outer stations, as recorded in the list, but were omitted at the inner ones. The dredge was the implement most commonly used for scraping the bottom, but the beam-trawl was also frequently employed on the smooth inner grounds. The rake-dredge was worked a few times off Gay Head and the tangles very rarely, in only a few places. The characters of the many localities gone over in 1871, as well as the species of animals found inhabiting them, are fully discussed in the "Report upon the Invertebrate Animals of Vineyard Sound and the adjacent waters, with an account of the physical characters of the region," by Prof. A. E. Verrill; contained in the Report of the United States Fish Commissioner, Part I, for 1871-'72.

NOTE.—The serial numbers in this table from 1 to 87, inclusive, should be read 1 v, 2 v, 3 v, etc., to correspond with the charts upon which the positions are so designated.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.		
					Air.	Surface.	Bottom.
1	1371.	<i>a, b.</i> Off Little Harbor, Wood's Holl...	1½-2	Covered with eel-grass	.....	.....	.....
2	June 30	<i>a, b.</i> Off Little Harbor, Wood's Holl, between Nobska Point and Nonamesset Island.	2-3½	Rocky, small stones...	.....	.....	.....
3	July 11	<i>a, b, c.</i> Off Great Harbor, Wood's Holl, from south of buoy R. No. 4 to Great Ledge.	2½-9½	Rocks, gravel, &c....	.....	.....	.....
4	June 30	<i>a, b, c, d, e.</i> Beginning nearly the same as No. 3 and extending to beyond buoy R. No. 2.	3½-12½	Rocks, small stones, &c	.....	.....	.....
5	.....	Wood's Holl:					
		<i>a, b.</i> Southeast of Nonamesset Island...	3½-5½	Sand, gravel	.....	.....	.....
		<i>c, d.</i> Between Nonamesset Island and Great Ledge.	3½	Rocks, stones, dead shells.	.....	.....	.....
		<i>e.</i> Off Mink Point, Nonamesset Island...	8½	do	.....	.....	.....
		<i>f, g.</i> Mouth of Great Harbor.....	5½-9½	do	.....	.....	.....
6	July 20	Vineyard Sound:					
		<i>a, b.</i> Between Nobska Point and Falmouth.	2-3	Covered with eel-grass	.....	.....	.....
		<i>c.</i> Between Nobska Point and Falmouth.	3-5	Gravel and shells....	.....	.....	.....
		<i>d.</i> About ½ mile south of Falmouth....	4½	do	.....	.....	.....
		<i>e, f.</i> Between Falmouth Harbor and Western end of L'Homme Dieu Shoal.	5½-9	do	.....	.....	.....
7	.....	<i>a.</i> Lackey's Bay, Vineyard Sound.....	.....	Covered with eel-grass	.....	.....	.....
8	June 30	<i>b, c, d.</i> Lackey's Bay, Vineyard Sound.	.....	Gravel	.....	.....	.....
9	June 29	<i>a, b, c, d, e, f, g.</i> Vineyard Sound, off Nonamesset Island and Wood's Holl.	7-10	Rocks, gravel, small stones.	.....	.....	.....
		<i>a, b, c, d.</i> Vineyard Sound, south of Little Harbor, Wood's Holl, ¼ to 1½ miles from Nobska Point.	7-12	Rocks.	.....	.....	.....
10	July 24	Wood's Holl:					
		<i>a, b, c.</i> Passages between Nonamesset and Naushen Islands.	1½-2½	Soft mud	.....	.....	.....
		<i>d.</i> Hadley Harbor.....	3½	do	.....	.....	.....
		<i>e, f.</i> Between Long Neck and Nonamesset Island.	3-6½	Hard gravel	.....	.....	.....
11	.....	Wood's Holl Passage:					
		<i>a, b, c.</i> Off Nonamesset Island.....	2½-4½	Fine gravel, dead weeds.	.....	.....	.....
		<i>d, e, f, g.</i> Off Uncatena Island.....	3½-5	Sand, stones	.....	.....	.....
12	.....	<i>a, b, c.</i> Wood's Holl Passage, between Long Neck and Nonamesset Island.	2½-5½	Sand, gravel	.....	.....	.....
13	.....	<i>a, b.</i> Mouth of Great Harbor, Wood's Holl, from off Bar Neck wharf to midway between Mink Point and Parker's Neck.	1½-7	Gravel, &c	.....	.....	.....
14	.....	Wood's Holl, in the passage-way to the east and south of Ram and Bluff Islands:					
		<i>a, b.</i>	3½-5½	Rocky	.....	.....	.....
		<i>c, d.</i>	2½-5½	do	.....	.....	.....
		<i>e, f, g.</i> In Great Harbor.....	5-10	Rocky, sand	.....	.....	.....
15	.....	<i>a, b, c.</i> Wood's Holl, buoy No. 3, Middle Ledge to Lone Rock Spindle.	3-2½	Gravel, small stones, shells.	.....	.....	.....
16	.....	<i>a, b, c.</i> Great Harbor, Wood's Holl, near buoys No. 12 and 14.	1½-14	Rocks	.....	.....	.....
17	.....	Mouth of Great Harbor, from Bar Neck to east of Nonamesset Island.	1½-14½		.....	.....	.....
		<i>a, b.</i>		Mud and eel-grass	.....	.....	.....
		<i>c, d, e, f.</i>		Rocks, &c.	.....	.....	.....
18	July 24	<i>a, b, c, d.</i> Mouth of Great Harbor, from off Bar Neck wharf to midway between Parker's Neck and Nonamesset Island.	2½-12½	Hard gravel.	.....	.....	.....
19	.....	<i>a, b.</i> Mouth of Great Harbor, between Parker's Neck and Lone Rock Spindle.	1-8½	Gravel, mud, weeds	.....	.....	.....
20	.....	<i>a, b, c.</i> Mouth of Great Harbor, between Nonamesset Island and Parker's Neck.	1½-6½	Gravel, &c	.....	.....	.....
21	June 27 } June 23 }	<i>a, b, c, d, e.</i> Vineyard Sound, southeasterly from Nobska Point about ½ mile; all near together.	6-10	Rocks, gravel, small stones.	.....	.....	.....
22	.....	Vineyard Sound, between Nobska Point and Falmouth Harbor.	4-5½		.....	.....	.....
		<i>a, b, c.</i>		Stones, dead shells.	.....	.....	.....
		<i>d.</i>		Sand, gravel	.....	.....	.....

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.		
					Air.	Surface.	Bottom.
23	1871. June 30 } July 3 } July 8 }	<i>a, b, c, d, e, f.</i> Between Nobska Point and Falmouth, and south of Falmouth, about 1 mile.	4½-10	Gravel, small stones, shells.	.....	.....	.....
24	.....	Vineyard Sound: <i>a, b.</i> About 1½ miles south of Falmouth. <i>c, d.</i> North of west end of L'Homme Dieu Shoal.	5½-10 5-13	.....	.....	.....	.....
25	.....	<i>a, b, c, d, e.</i> Vineyard Sound, between Waquoit Bay and Falmouth.	3-5	Sand, shells, eel-grass.	.....	.....	.....
26	.....	<i>a, b, c, d, e.</i> Vineyard Sound; a line of dredgings parallel to No. 25, and from ¾ mile further south.	5-13	Gravel, shells.	.....	.....	.....
27	.....	<i>a, b.</i> Vineyard Sound, about midway between the western part of L'Homme Dieu Shoal and the mainland.	5½-13	Sand, shells, eel-grass.	.....	.....	.....
28	July 20	Vineyard Sound: <i>a, b.</i> Off western entrance to channel between L'Homme Dieu Shoal and Hedge Fence. <i>c, d, e, f.</i> South of western end of Hedge Fence.	5-6 10-12	Sand, stones, sea-weeds Sand, gravel, small stones.	.....	.....	.....
29	.....	<i>a, b, c.</i> Vineyard Sound; a line parallel to, and just south of, eastern half of Hedge Fence.	5½-12	Gravel, &c.	.....	.....	.....
30	.....	<i>a, b.</i> Mouth of Vineyard Haven, between East and West Chop.	5-7	Sand, eel-grass, algæ.	.....	.....	.....
31	July 20	Vineyard Sound: <i>a, b.</i> Between Hedge Fence and East Chop. <i>c, d, e.</i> North of East Chop and off Vineyard Haven.	10-13 9-11½	Sand, gravel, small stones. do	.....	.....	.....
32	.....	<i>a, b, c.</i> Vineyard Sound; line running east and west, north of eastern half of Hedge Fence.	11-12½	Gravel, &c.	.....	.....	.....
33	.....	Vineyard Sound: <i>a, b.</i> South of eastern end of L'Homme Dieu Shoal. <i>c, d.</i> Southeast of same shoal.	5½-13½ 5-8½	do do	.....	.....	.....
34	.....	<i>a, b, c, d, e, f.</i> Vineyard Sound, between eastern end of L'Homme Dieu Shoal and Wreck Shoal.	5-7	Gravel, hard mud, sand.	.....	.....	.....
35	.....	<i>a, b, c, d, e.</i> Vineyard Sound; line running east and west between Wreck Shoal and 1 mile off Waquoit Bay.	4-7½	Gravel, shells.	.....	.....	.....
36	.....	<i>a, b, c, d.</i> Nantucket Sound, between Wreck Shoal and Horse-Shoe Shoal.	4½-15½	Astrangia, sponges, &c.	.....	.....	.....
37	.....	Vineyard Sound, off north side of Martha's Vineyard and nearly parallel with the shore, distant from shore ¼-½ mile: <i>a, b, c, d.</i> Between Martha's Vineyard and Middle Ground. <i>e, f, g.</i> Off West Chop. <i>h, i.</i> Off East Chop.	5-11 9-13 4½-9	Gravel, stones, rocks. Rocks, sand. Sand, stones	.....	.....	.....
38	.....	Vineyard Sound: <i>a.</i> About ¾ mile north of center of Middle Ground. <i>b, c.</i> Just off center of Middle Ground.	10-14 9½-13½ 12-13½	Gravel. do Stones, gravel.	.....	.....	.....
39	June 29	<i>a, b.</i> Vineyard Sound, about midway between Nobska Point and Middle Ground.	10-13	Gravel, stones, sand.	.....	.....	.....
40	.....	<i>a, b, c, d.</i> Vineyard Sound, between Wood's Holl and Middle Ground.	10-13	Gravel, stones, sand.	.....	.....	.....
41	.....	Vineyard Sound: <i>a.</i> About 1½ miles east of Nobska Point. <i>b.</i> About 1½ miles southeast of Nobska Point.	4½-6½ 10-12	Small stones do	.....	.....	.....
42	July 17	<i>a, b.</i> Vineyard Sound, off Tarpaulin Cove.	10½-15½	Gravel.	.....	.....	.....
43	.....	Vineyard Sound: <i>a, b, c.</i> Line of dredgings off northern half of Naushon Island, parallel to shore, distant about ½ mile. <i>d.</i> Continuation of same, ½ mile off Nonamesset Island.	10½-12½ 10½-11½	Gravel, hard sand. Gravel.	.....	.....	.....

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.		
					Air.	Surface.	Bottom.
44	1871.	<i>a, b, c, d, e.</i> Vineyard Sound; line about parallel to last, off northern half of Naushon Island, about 1 mile from shore.	10½-15½	Gravel			
45		<i>a, b.</i> Vineyard Sound, off Quick's Hole.	6½-8½	Coarse gravel, shells			
46		Vineyard Sound, off the Elizabeth Islands.	7-14½				
		<i>a, b.</i> Off Pasque Island		Sand, shells			
		<i>c.</i> Off Robinson's Hole		do			
		<i>d, e.</i> Off south end of Naushon Island.		Sand, shells, and gravel			
47		<i>a, b, c, d, e.</i> Vineyard Sound, off west side of Martha's Vineyard, between Menemsha Bight and Cedar Tree Neck, ½ to 1½ miles from shore, and nearly parallel to it.	10-17½				
		<i>a, b, c, d.</i>		Black mud, dead mussels, &c.			
48		<i>e</i>		Sand			
		<i>a, b, c, d.</i> Vineyard Sound, same as last, ½-¾ mile from shore, and extending about 1½ miles both north and south of Cape Higgon.	4½-11	Sand, gravel, shells			
49		Vineyard Sound:					
		<i>a.</i> About northeast of Gay Head, 4½ miles.	7½-13				
		<i>b.</i> About west of Lucas Shoal, 1½ miles.	5-6				
50		<i>a, b.</i> Vineyard Sound, Menemsha Bight.	4-8				
51		Vineyard Sound, Menemsha Bight:					
		<i>a, b, c</i>	1½-2½	Mud, fine sand			
		<i>d</i>	4½	do			
		<i>e</i>	6-9	do			
52	July 14 } July 17 }	<i>a, b, c, d.</i> Vineyard Sound, north of southwestern extremity of Martha's Vineyard, ¾-1 mile from shore (<i>c, d</i> , off Menemsha Bight).	10-12	Sand			
53	July 14	<i>a, b, c, d, e.</i> Vineyard Sound, north and northeast of Devil's Bridge, Gay Head, ¾ to 1 mile from shore.	5-12	Sand, rocks			
54		Vineyard Sound, north of Gay Head:					
		<i>a.</i> About 1½ miles from shore.	16½	Mussels			
		<i>b.</i> About 2½ miles from shore.	14-15½	do			
55	July 22	<i>a, b, c.</i> Vineyard Sound, north of Devil's Bridge, Gay Head, ¾ mile.	6½-13½	Rocky, dead mussels, &c.			
56	July 22	<i>a, b, c, d.</i> Vineyard Sound, northwesterly from Gay Head, about 1 mile.	5-11	do			
57		<i>a, b, c, d, e.</i> About same position as last, forming a line about ½ mile further off.	5-13½	Rocky			
58		<i>a, b, c, d, e.</i> Vineyard Sound, northwesterly from Gay Head, 1½-2 miles.	10-16				
		<i>a, b, c</i>		Rocky			
		<i>d</i>		Mud, dead mussels			
59		<i>a, b, c.</i> Vineyard Sound, northwesterly from Gay Head, ¾-1½ miles.	5½-11½	Rocky			
60		<i>a, b, c.</i> Vineyard Sound, northwesterly from Gay Head, 1-2 miles.	6-11½	do			
61		<i>a, b, c.</i> Vineyard Sound, northwesterly from Gay Head, 1-2 miles; more easterly than 60.	5½-13½	do			
62		<i>a, b, c.</i> Vineyard Sound, northwesterly from Gay Head, 1-2 miles; more easterly than 61.	5½-16½	do			
63		<i>a, b, c, d.</i> Vineyard Sound, north of Devil's Bridge, Gay Head, ¾-1 mile.	6-8½	Rocks, sand, shells			
64	July 12	Buzzard's Bay, Cataumet Harbor:					
		<i>a.</i> In harbor	3½	Sand, eel-grass			
		<i>b.</i> At mouth of harbor.	3½-4½	do			
65		<i>a, b.</i> Buzzard's Bay, off Cataumet Harbor.	4½				
66		<i>a, b.</i> Buzzard's Bay, between Long Neck and Quamquisset Harbor.	5-6½	Hard sand			
67	July 24	<i>a, b.</i> Just outside of 66.	5-6½	Sand, mud			
68		Buzzard's Bay, west of Quamquisset Harbor:					
		<i>a.</i> About 2 miles	7½	Fine sandy mud			
		<i>b.</i> About 1 mile	7½	do			
		<i>c.</i> About ¾ mile	6-7	Mud			
69		<i>a, b.</i> Buzzard's Bay, west of Quamquisset Harbor, about 1½ miles.	5½-7½				

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.		
					Air.	Surface.	Bottom.
70	1871.	<i>a, b, c, d.</i> Buzzard's Bay, westward of Quamisset Harbor, about $1\frac{1}{2}$ - $2\frac{1}{2}$ miles.	7 $\frac{1}{2}$	Sand, gravel, stones	.....	.....	.....
71	<i>a, b.</i> Wood's Holl Passage, between Long Neck and Uncatena Island.	3 $\frac{1}{2}$ -6 $\frac{1}{2}$	Fine gravel	.....	.....	.....
72	<i>c, d.</i> West of Long Neck, $\frac{1}{2}$ - $\frac{3}{4}$ mile.	3 $\frac{1}{2}$ -6 $\frac{1}{2}$	Rocks, hard sand	.....	.....	.....
73	<i>a, b, c, d.</i> Buzzard's Bay, northward from Woepecket Island, $1\frac{1}{2}$ -2 miles, forming a line running about north-east and southwest.	7 $\frac{1}{2}$ -8 $\frac{1}{2}$	.....	.....	.....	.....
73	Buzzard's Bay, north of northern part of Naushon Island:	.....	.....	.....	.....	.....
73	<i>a, b, c.</i> Parallel and near to shore from Uncatena Island to south of Woepecket Island.	6 $\frac{1}{2}$ -10 $\frac{1}{2}$	Sand, mud	.....	.....	.....
73	<i>d.</i> About west of Woepecket Island, $\frac{1}{2}$ mile.	6 $\frac{1}{2}$	Rocks	.....	.....	.....
73	<i>e, f, g.</i> Northwesterly from Woepecket; <i>e</i> , $\frac{1}{2}$ mile; <i>f</i> , 1 mile; <i>g</i> , $1\frac{1}{2}$ miles.	7 $\frac{1}{2}$ -8 $\frac{1}{2}$	Sand and muddy sand	.....	.....	.....
74	<i>a, b.</i> Buzzard's Bay, northward of Woepecket Island, $1\frac{1}{2}$ - $2\frac{1}{2}$ miles.	7 $\frac{1}{2}$	Mud	.....	.....	.....
75	Buzzard's Bay, forming a line of dredgings parallel to the Elizabeth Islands and distant from them $\frac{1}{2}$ - $\frac{3}{4}$ mile.	7-9	.....	.....	.....	.....
75	<i>a, b, c.</i> Off Naushon Island.	.....	Blue mud	.....	.....	.....
75	<i>d, e.</i> Off Pasque Island	.....	do	.....	.....	.....
75	<i>f, g, h.</i> Off Cuttyhunk Harbor	3 $\frac{1}{2}$ -5	.....	.....	.....	.....
76	<i>a, b, c.</i> Buzzard's Bay, between Quick's Hole and Lone Rock.	3 $\frac{1}{2}$ -8 $\frac{1}{2}$	Gravel, dead weeds, &c	.....	.....	.....
77	<i>a, b, c, d, e, f.</i> Quick's Hole, between Pasque Island and Nashawena Island.	5 $\frac{1}{2}$ -8 $\frac{1}{2}$	Rocks, gravel, sand	.....	.....	.....
78	<i>a, b, c, d, e.</i> Buzzard's Bay, off northern entrance to Robinson's Hole.	3 $\frac{1}{2}$ -7 $\frac{1}{2}$	.....	.....	.....	.....
78	<i>a</i> .....	.....	Mud, eel-grass, and dead weeds.	.....	.....	.....
78	<i>b</i> .....	.....	Black mud	.....	.....	.....
78	<i>c</i> .....	.....	Blue clay	.....	.....	.....
79	In channel between Chappaquiddick Island, Martha's Vineyard, and Hawe's Shoal:	.....	.....	.....	.....	.....
79	<i>a.</i> Northern part of channel	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	.....	.....	.....	.....
79	<i>b.</i> Southern part of channel	4 $\frac{1}{2}$ -5	.....	.....	.....	.....
80	Sept. 12	Southeasterly from Martha's Vineyard, $3\frac{1}{2}$ to 9 miles:	.....	.....	.....	.....	.....
80	<i>a.</i> 10 miles south from Cape Poge	16 $\frac{1}{2}$	Sand and silicious sponges.	64	60	60
80	<i>b.</i> 13 miles south from Cape Poge	18 $\frac{1}{2}$	Sand	64	59	59
80	<i>c.</i> 1 $\frac{1}{2}$ miles west of <i>b</i>	21	Sandy mud	61, 5	59	59
81	Sept. 12	South of Martha's Vineyard, 5 to 8 miles:	.....	.....	.....	.....	.....
81	<i>a.</i> Southeast of Gay Head, $12\frac{1}{2}$ miles	16 $\frac{1}{2}$	Sand	.....	.....	.....
81	<i>b.</i> Southeast of Gay Head, 8 miles	16 $\frac{1}{2}$	do	.....	61	61
82	Sept. 9	South and southwest from Gay Head, about 5 miles; northwest of Norman's Land:	.....	.....	.....	.....	.....
82	<i>a.</i> 5 miles south-southwest of Gay Head.	8-12	Gravel and stones	.....	.....	.....
82	<i>b.</i> 5 miles south of Gay Head	16	do	.....	62	62
83	<i>a, b, c, d.</i> Vineyard Sound, off Gay Head, parallel to No. 58, and slightly more distant from shore.	10-16	Rocky	.....	.....	.....
84	Sept. 11	South and southwest of Gay Head:	.....	.....	.....	.....	.....
84	<i>a.</i> $1\frac{1}{2}$ miles southwest of Gay Head	13	Rocks, gravel	.....	.....	.....
84	<i>b.</i> 4 miles southwest of Gay Head	16 $\frac{1}{2}$	Sandy mud	.....	.....	.....
84	<i>c.</i> 2 $\frac{1}{2}$ miles a little west of south of Gay Head.	12	Rocks, gravel	.....	.....	.....
84	<i>d.</i> $3\frac{1}{2}$ miles a little east of south of Gay Head.	7	do	.....	.....	.....
85	Sept. 9	West of Gay Head, 2 to 5 miles:	.....	.....	.....	.....	.....
85	<i>a.</i> 3 miles; <i>b</i> , $3\frac{1}{2}$ miles; west of Gay Head.	15 $\frac{1}{2}$	Sand	67	63	63
85	<i>c.</i> 4 miles west of Gay Head	18	Soft, sticky mud	62	58	58
85	<i>d.</i> 1 mile north-northwest from <i>c</i>	19	do	62	57	57
85	<i>e.</i> 5 miles a little north of west from Gay Head.	11	do	63	59	59
86	Sept. 13	West-southwest of Gay Head, 10 to 13 miles:	.....	.....	.....	.....	.....
86	<i>a.</i> 13 miles west-southwest from Gay Head.	25	Gravel, sand, with some mud.	.....	.....	.....
86	<i>b.</i> $10\frac{1}{2}$ miles west-southwest from Gay Head.	25	do	64	.....	.....

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.		
					Air.	Surface.	Bottom.
87	1871. Sept. 14	a. 19½ miles west-southwest of Gay Head.	29	Sandy mud.....			
		b. 18½ miles west-southwest of Gay Head.	29	....do		62	59

STATIONS FOR 1872, WITH HEADQUARTERS AT EASTPORT, ME.

The dredgings for 1872 were mostly carried on from a large sail-boat; but those in the deeper waters of the Bay of Fundy were made from the United States revenue-cutter Mosswood, Captain Hodgdon. The regions explored were about as follows: Eastport Harbor, South Bay, and Passamaquoddy Bay, all of which are comparatively shallow-water areas; the shallow waters about the island of Grand Menan, especially those among the small islands to the east of Grand Menan; and the deeper waters east of Campobello Island, west of Grand Menan; and toward the center of the Bay of Fundy, between Grand Menan and Nova Scotia.

In connection with the shallow-water dredgings no complete record of observations was kept, but the collections made were appropriately labeled with the precise locality, depth of water, nature of bottom, &c. The more important hauls in deep water, mostly accompanied by temperature observations, are as follows, the letters used to designate them being the same as were employed in the original records:

Serial letter.	Date.	Locality.	Depth in fathoms.	Temperatures.		
				Air.	Surface.	Bottom.
t.	1872. Aug. 24	Bay of Fundy, off Grand Menan, beginning at a point 8 miles SE. by E. of north end of White Head Island, and running NE. for a distance of nearly 3 miles. (Temperatures taken at the beginning and close, and the same at both.)	106-90	°	48	38
t'.	...do ...	Bay of Fundy, off Grand Menan, north of last; beginning 8½ miles E. of White Head Island, and extending about 2 miles SW.	96-100	.....	.....	37½
u.	Aug. 23	Bay of Fundy, E. of Grand Menan, about 2½ miles E. of north end of White Head Island.	28-52	.....	53	39½
u'.	...do ...	Bay of Fundy, E. of Grand Menan, 1½ miles E. by S. ¾ S. of north end of White Head Island.	29	.....	.....	44
v.	Aug. 28	Grand Menan channel, west of Grand Menan Island; 2½ miles N. by W. ½ W. of Southern Head, G. M.	40	.....	48	45½
v'.	...do ...	Grand Menan channel, west of Grand Menan Island; 4½ miles NNW. ½ W. of Southern Head, G. M.	54	.....	47	40
v''.	...do ...	Grand Menan channel, west of Grand Menan Island; 6 miles N. ½ W. of Southern Head, G. M.	55	.....	.....	40
w.	Aug. 16	Bay of Fundy, about 3½ miles east of Herring Cove Head, Campobello Island. (Soft muddy bottom.)	60	.....	.....	43
w'.	...do ...	Bay of Fundy, just off Herring Cove, Campobello Island.	27	.....	.....	46
x.	Aug. 2	Bay of Fundy, 2½ miles, about SE. of Head Harbor Light, Campobello Island.	90	.....	48½	39½
x'.	...do ...	About 2½ miles ENE. of Head Harbor Light, Campobello Island.	77	.....	.....	42
x''.	...do ...	About 1½ miles NE. of Head Harbor Light.	30	.....	.....	46
x'''.	...do ...	Midway between Head Harbor Light and Spruce Island.	73	.....	48	45
y.	Aug. 5	Passamaquoddy Bay, off North Harbor, Deer Island.	25	.....	57½	47
z.	...do ...	Passamaquoddy Bay, 1¼ miles north of last.	32	.....	58	46

STATIONS FOR 1873, WITH HEADQUARTERS AT PEAK'S ISLAND, CASCO BAY, MAINE; AND ALSO STATIONS OF THE UNITED STATES COAST SURVEY STEAMER *BACHE* FOR 1872, 1873, AND 1874, IN THE GULF OF MAINE, ETC.

In this list the dredgings indicated by the above heading have been grouped together, as they appear on the chart prepared for publication. Numbers ranging from 1 B. to 78 B. were originally assigned to the *Bache* dredgings for 1873 and 1874, in papers published by Professor Verrill in the *American Journal of Science* for April, 1874, and June, 1875, and elsewhere. To these the dredging stations of the *Bache* for 1872, 18 in number, have been added, thus increasing the list to 97 B. As to the regular series of dredgings made by the *Bluelight*, under command of Lieut. Commander L. A. Beardslee, in and off Casco Bay, no serial numbers were given to the hauls until the commencement of the temperature observations, July 21. To the numbers (1 to 66), given to such of the subsequent hauls as were accompanied by temperature observations, 100 has been added (101 Bl. to 166 Bl.), and numbers from 167 Bl. to 190 Bl. have been given to the hauls from July 12 to July 21, and from 191 Bl. to 212 Bl. to those taken after July 20, but not included in the temperature series. The descriptions of localities from 101 Bl. to 166 Bl. are taken from the record books for temperatures, with some additions, and from 167 Bl. to 212 Bl. from the eight books of dredging lists, which were kept. Additions to 101 Bl. to 166 Bl., taken from the dredging books, are marked D. L.

The dredging stations of the *Bache* for 1872 were on and about Saint George's Bank and La Have Bank, and extended as far as Halifax, N. S.; in 1873 they were mostly in the Gulf of Maine, especially in the region of Jeffrey's and Cashe's Ledges, a few being made in Massachusetts Bay; those for 1874 were entirely in the Gulf of Maine.

DREDGINGS BY THE BACHE, 1873.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.			Apparatus used.
							Air.	Surface.	Bottom.	
1B.....	Sept. 3	43 39	69 22	Off Monhegan Island.....	52	Soft gray mud.....	58	55	{ 42 44	
2B.....	do	43 38	69 22	7 miles SW. from Monhegan Island.....		Soft mud.....	58	55	{ 42 44	
3B.....	do	43 38	69 17	8 miles S. from Monhegan Island.....	64	Mud and sand.....	56	54	{ 43 44	
4B.....	do	43 37	69 05	13 miles SE. by S. from Monhegan Island.....	60	Brown mud, sand.....	60	55	{ 43 45	
5B.....	do	43 37	68 59	17 miles SE. from Monhegan Island.....	72	Brown mud.....	60	54	{ 43 44	
6B.....	do	43 38	69 01	15 miles SE. from Monhegan Island.....	82	do.....				
7B.....	do	43 38	69 01	do.....	82	do.....				
8B.....	do	43 36	68 32	18 miles SE. by S. from Matinicus Rock.....	94	Mud and gravel.....	56	55	{ 39 40	
9B.....	do	43 36	68 24	23 miles SE. from Matinicus Rock.....	107	Sticky brown mud.....	56	57	{ 39 40	
10B.....	Sept. 4	43 34	68 27	22 miles SE. by S. from Matinicus Rock.....	104	Soft brown mud.....	56	57	{ 41 42	
12B.....	Sept. 13	43 20	68 33	Jeffrey's Bank.....	60	Brown mud.....	56	54	{ 42 43	
13B.....	do	43 23	68 30	do.....	105½	do.....	58	54	{ 40 43	
14B.....	do	43 23½	68 40	do.....	80	do.....	62	60	{ 42 43	
15B.....	do	43 23	68 44	do.....	72½	do.....	60	58	{ 42 47	
16B.....	do	43 19	68 49	do.....	79	do.....	62	58	{ 40 40½	
17B.....	do	43 15½	68 54	SW. from Jeffrey's Bank.....	100	Brown mud, gravel.....	59	57	{ 52 56	
18B.....	do	43 15½	69 06	do.....	106	Brown mud.....	58	56	{ 40 40½	
20B.....	Sept. 16	43 01	70 10	15 miles SE. from Boon Island Light.....	95	Mud.....	58	58	{ 37½ 40½	
21B.....	do	42 49	68 50	Cashe's Ledge.....	52-90	Rocky.....	52	57	{ 43 43	
22B.....	do	42 52	69 23	56 miles E. of Cape Ann.....	90	Blue mud.....	52	56	{ 40 43	
23B.....	do	42 52	69 35	47 miles E. of Cape Ann.....	118	Mud.....	54	57	{ 39 39	
24B.....	do	42 56	70 09	E. of Jeffrey's Ledge.....	114	Soft mud.....	59	57	{ 36½ 36½	
24½B.....	do	42 56	70 17½	6 miles farther W.....	114	do.....	58	58	{ 40 40	
25B.....	do	42 28	70 44	3½ miles SE. from Halfway Rock.....	29	do.....	54	54	{ 43 43	
26B.....	do	42 32½	70 50	Salem Harbor.....	6	do.....				
27B.....	do	42 40	70 27½	Jeffrey's Ledge, 6 miles E. of Thatcher's Island Lights.....	24	Gravel and stones.....	57	58	{ 46 46	
28B.....	do	42 41	70 24½	8 miles E. by N. of Thatcher's Island Lights.....	26	do.....	57	58	{ 48 48	
29B.....	do	42 47½	70 20½	14 miles NE. by E. ½ E. from Thatcher's Island Lights.....	33	do.....	70	54	{ 49 49	
30B.....	do	42 26	70 35	Massachusetts Bay.....	50	Soft mud.....	60	58	{ 42 45	

DREDGINGS BY THE BACHE, 1873-Continued.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.			Apparatus used.
							Air.	Surface.	Bottom.	
31 B.	42 19	70 29	Massachusetts Bay.....	56	Mud.....	62	60	41½	.....
32 B.	42 19	70 23	West of Stellwagen's Bank.....	29	Hard, rocky.....	64	58	46½	.....
33 B.	42 20	70 18	On Stellwagen's Bank.....	22	do.....	64	.....	50½	.....
34 B.	42 22	70 11	East of Stellwagen's Bank.....	44½	Sand.....	61	.....	50½	.....
35 B.	42 08	70 15	Between Stellwagen's Bank and Race Point.....	34	do.....	59	57	48	.....
36 B.	42 18	69 49	23½ miles ENE. ¼ N. from Race Point.....	142	Soft blue mud.....	60	58	39	.....
37 B.	42 20	70 00	19½ miles NE. from Race Point.....	117	do.....	.....	.....	42	.....

No record exists of any hauls corresponding to Nos. 11 B. and 19 B.

DREDGINGS BY THE BACHE, 1874.*

38 B.	Sept. 2	42 43½	70 37	Thatcher's Island Light, about 10 miles south.....	41	Soft blue mud.....	70	68	45	.....
39 B.	do	42 51½	70 36½	Thatcher's Island Light, about 13 miles south.....	48	Mud.....	70	69	45½	.....
40 B.	do	42 51½	70 35½	Thatcher's Island Light, about 16 miles south.....	43	Blue mud.....	70	69	47	.....
41 B.	do	42 57½	70 35	Thatcher's Island Light, about 18½ miles south.....	36-27	Mud and rocks.....	70½	69	47½	.....
42 B.	Sept. 3	43 02½	70 20	Boon Island Light, N.W. by W. ¾ W. 6 miles.....	68	Brown mud.....	69½	67	52½	.....
43 B.	do	43 04½	70 28	Boon Island Light, N. by E.; hotel on Isles of Shoals, SW. by W. ¾ W.....	43	do.....	75	65	47	.....
44 B.	do	43 00½	70 35	Star Island, SW.; Duck Island, W.....	25	Rocky.....	75	67½	51	.....
45 B.	Sept. 4	43 03	70 11½	Boon Island Light, WNW. 12½ miles.....	88	Soft mud.....	65	67	40	.....
46 B.	do	43 03	70 04	Agamenticus Mountain, NW. by W. ¼ W.....	51	Hard sandy mud.....	65	68½	42	.....
47 B.	do	43 03½	70 03	Jeffrey's Lodge, near No. 46 B.....	25	Sand and gravel.....	64	58½	45½	.....
48 B.	do	43 01½	70 03½	Jeffrey's Lodge, near No. 47 B.; Agamenticus Mountain, NW. ¾ W.....	36	Gravel.....	64	56½	47½	.....
49 B.	do	43 02½	69 52	Boon Island Light, WNW. 27 miles.....	113	.....	64	65	40	.....
50 B.	do	43 01½	69 45	W. of Cashe's Lodge.....	100	Mud and gravel.....	60	56	40	.....
51 B.	Sept. 5	42 56	69 08	Cashe's Lodge.....	105	Rock and gravel.....	60	55	41	.....
52 B.	do	42 51	68 52½	do.....	27	Soft mud.....	60	55	42	.....
53 B.	do	42 51	68 50	do.....	73	Soft mud.....	60	55	42	.....
54 B.	do	42 49	68 48½	Off SE. edge of Cashe's Lodge.....	110	Mud.....	61	61	42	.....
55 B.	do	42 53½	68 53½	Cashe's Lodge.....	40	Gravel.....	60½	63	43	.....

56 B	do	42	52	68	54	do	30	do	62	59	46
57 B	do	42	51	68	52	do	37	Rocky	60	57	40
58 B	do	42	51	68	52	do	39	do	60	57	40
59 B	do	43	04	69	05	NW. of Cache's Ledge	65	Mud and gravel	61	55	41
60 B	do	43	22	69	17	do	92	Mud	61	57	41
61 B	Sept. 6	43	17	69	24	Booth Bay Harbor, Maine	65	Mud and sand	64	58	51
62 B	do	43	51	69	38	do	5	Mud	64	62	47
63 B	Sept. 7	43	40	69	27	Penaquid Point, N. 10 miles	48	Brown mud	68	65	48
64 B	do	43	43	69	30	Punkin Island, NW. 4 miles	58	Mud	61	57	42
65 B	do	43	38	69	26	Penaquid Point, N. 12 miles	47	Soft mud	64	59	44
66 B	do	43	44	69	22	Monhegan Island, E. by N. 2 miles	65	Brown mud and gravel	66	64	40
67 B	Sept. 8	43	34	69	31	Monhegan Island, NE. $\frac{1}{2}$ E. 14 miles	86	Brown mud	63	64	40
68 B	do	43	25	69	34	Seguin Island Light, N. 8° W. 19 miles	91	Mud	64	59	40
69 B	do	43	31	69	31	Seguin Island Light, NW., near No. 67 B	32	Sand	64	60	46
70 B	do	43	11	69	35	On Platt's Bank	91	Mud	61	58	40
71 B	do	43	03	69	36	do	96	Brown mud	61	58	40
72 B	Sept. 9	42	55	69	36	do	125	do	61	57	39
73 B	do	42	57	69	50	E. of Jeffrey's Ledge	102	do	62	59	40
74 B	do	42	58	70	09	W. of Jeffrey's Ledge	88	do	62	60	39
75 B	do	43	01	70	15	do	92	do	64	64	40
76 B	do	43	02	70	15	SW. of Boon Island	51	Mud and gravel	64	63	42
77 B	do	43	03	70	25	White Island Light, E. $\frac{1}{2}$ S. $\frac{3}{4}$ miles	33	Rocky	69	65	44
78 B	do	42	58	70	33	Agamenticus Mountain, NW. by N. $\frac{1}{2}$ N., near Jeffrey's Ledge	35	Blue clay, mud, sand	61	60	43
	Sept. 12	43	04	70	30						

* The surface temperatures taken this year were quite unreliable, in consequence of an erroneous method of observation.

DREDGINGS BY THE CACHE, 1872.

[The letters preceding the serial numbers are the same used to distinguish the hauls in Smith and Harger's Report on the Saint George's Bank Dredgings (Trans. Conn. Acad., vol. iii), and in Professor Verrill's papers in American Journal of Science. The bottom temperatures this year are quite unreliable, manifestly too high in general.]

a	79 B	Aug. 29	o	41	40	o	03	10	'	On northwest part of Saint George's Bank	25	Soft sand	o	o	o
b	80 B	do	41	40	08	10	do	08	10	do	30	do	do	do	do
c	81 B	do	41	25	06	45	do	06	45	East of Saint George's Bank	28	Coarse sand	do	do	do
d	82 B	Aug. 31	41	25	66	24	do	66	24	do	50	Sand and shells	66	62	45
e	83 B	Sept. 16	41	25	65	55	do	65	55	do	60	do	61	58	58
f	84 B	do	41	25	65	50	do	65	50	do	65	Dead shells	64	60	55
g	85 B	do	41	25	65	42	do	65	42	do	430	Sand, gravel, stones	66	65	51
h	86 B	do	42	56	64	51	do	64	51	On La Have Bank	45	Gravel and stones	64	61	36
i	87 B	Sept. 12	42	44	64	36	do	64	36	South of La Have Bank	60	Gravel, stones, sponges	62	62	do
j	88 B	do	42	44	64	36	do	64	36	Off Chebucto Head, Nova Scotia, entrance Halifax Harbor	20	Mud and fine sand	do	56	49
k	89 B-91 B	Sept. 11	43	05	67	49	do	67	49	Off northwest border of Saint George's Bank	110	Soft mud and sand	do	56	49
l	92 B	do	42	03	67	42	do	67	42	do	85	do	do	56	49
m	93 B, 94 B	do	42	03	67	42	do	67	42	Off north border of Saint George's Bank	45	Coarse sand	do	do	do
n	95 B	do	42	03	67	31	do	67	31	do	150	Soft sandy mud	do	52	52
o	96 B, 97 B	do	42	11	67	17	do	67	17	Off northeast border of Saint George's Bank					
p	98 B-100 B	do								(There are no hauls corresponding to these numbers)					

DREDGINGS BY THE BLUELIGHT, 1873.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.		Apparatus used.
							Air.	Bottom.	
101 Bl.	July 21	43 32	70 05½	Cape Elizabeth Light, NW. ¼ W.; Portland Head Light, N. by W.	24	Gravelly	° 51	° 44½	
102 Bl.	July 22	43 44	70 03½	Casco Bay, Stockman's Island, W.; Upper Flag Island, E. by S.	16-22½	Sandy	° 57	° 50	
103 Bl.	do	43 42	70 03½	Casco Bay, Broad Sound, Bates Island, W.; Eagle Island, E.	22-34	Gravel, br. shells	° 52	° 48	
104 Bl.	July 24	43 41½	70 08	Casco Bay, Luckses' Sound	12½	Muddy	80 56½	46½	
105 Bl.	do	43 41	70 08	Casco Bay, Broad Sound, between Stockman's and Little Birch Islands.	16½	Fine sand	84 62	49½	
106 Bl.	do	43 42	70 08	Casco Bay, Broad Sound, between Eagle and Bates Islands.	21	Gravel	80 65	45½	
107 Bl.	July 26	43 42	70 08	Casco Bay, Broad Sound, between Stockman's and Upper Flag Islands.	16½	Sand	68 56½	47½	
108 Bl.	do	43 42	70 08	do	16½	Sand	68 56½	47½	
109 Bl., 110 Bl.	do	43 42	70 08	Casco Bay, Blue Light Cove (channel between Peak's, Great and Little Hog Islands).	3	Muddy	60½	59	
111 Bl.	July 27	43 40	70 12	Casco Bay, Blue Light Cove, off Evergreen Landing.	3	do	65	60	
112 Bl.	do	43 39½	70 13½	Portland Harbor, between Fort Gorges and Fort Preble	11½	Hard	65 59	52	
113 Bl.	do	43 39½	70 13½	Blue Light Cove	8	Muddy	65 60	56	
114 Bl.	do	43 39½	70 13½	do	13	do	63 62	58	
115 Bl.	July 29	43 39	70 13½	do	13	do	60 58	56	
116 Bl.	do	43 39	70 13½	do	2	do	66 60	57	
117 Bl.	July 30	43 39	70 13½	Casco Bay, Broad Sound, between Bates and Eagle Islands.	16-22	Gravel and sand	67 60	49½	
118 Bl.	do	43 39	70 13½	Casco Bay, Broad Sound, between Little Bangs and Stave Islands.	9½-12	Soft gravel, br. shells	66 60	53	
119 Bl.	do	43 43	70 05½	Casco Bay, Broad Sound, between Stockman's and Little Birch Islands.	17 (14½)	Sand, gravel, shells	66 60	53	
120 Bl.	do	43 43	70 05½	Blue Light Cove	18	Muddy	68 64	60	
121 Bl.	do	43 43	70 05½	do	2	do	70 66	61	
122 Bl.	July 31	43 38	70 12½	Portland Light, SSW. ¾ of a mile.	13½	Sandy	69 59½	49½	
123 Bl.	do	43 38	70 12½	Blue Light Cove	2	Muddy	71 62	58	
124 Bl.	do	43 38	70 12½	do	2	do	66 62	59	
125 Bl.	Aug. 1	43 42	70 07	do	2	do	62 60	56	
126 Bl.	Aug. 2	43 42	70 07	Casco Bay, Luckses' Sound, between Hope and Crotch Islands.	11	do	71 61	47	
127 Bl.	do	43 44	70 01	Casco Bay, Harpswell Sound, SW. end of Bailey's Island, S. by E.; Ram Island, N. by W.	12½	do	69 63½	45	
128 Bl.	do	43 42	70 11	Casco Bay, between Cow Island and Cow Island Ledge.	9	Sandy mud, gravel, shells	67 62	54½	
129 Bl.	do	43 42	70 11	Blue Light Cove	2	Muddy	68 63	57	
130 Bl.	Aug. 3	43 41½	70 10½	do	2	do	66 61	57	
131 Bl.	Aug. 4	43 41½	70 10½	Casco Bay, Cow Island, W. ¼ mile	12	Gravelly	70 65	51	

[illegible]

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperature.			Apparatus used.
							Air.	Surface.	Bottom.	
172 Bl.	July 11			Casco Bay, off Crotch Island.	(?)	(?)				T.
173 Bl.	July 14			Casco Bay, off Oveset Island.	16	Clean gravel.				
174 Bl.	do			Casco Bay, off north end of Blue Light Cove, drifting north.	15-19	Sand and sponge.				
175 Bl.	do			Casco Bay, off north end of Hog Island.	15	Sand				
176 Bl.	do	43 44	70 09½	Casco Bay, between Great Chebeag and Basket Islands.	7-8	Mud				Tan.
176* Bl.	do			do (i).	(?)	(?)				
177 Bl.	do			Casco Bay, off North end of Long Island.	(?)	Mud				
178 Bl.	July 15			Month Casco Bay, off Inner Green Island.	22	Rocky				
179 Bl.	do			do.	17	Sandy				
180 Bl.	do	43 40½	70 04	Casco Bay, off Jewell's Island.	(?)	(?)				T.
181 Bl.	July 16			(?)	(?)	Muddy				
182 Bl.	do			(?)	13-23	Shelly and Spongy.				
183 Bl.	do			(?)	(?)	do				
184 Bl.	July 17	43 36½	70 02	Off Portland, ENE. of West Cod Ledge.	14-20	Hard and rocky				T.
185 Bl.	do			Off Portland, WSW. of West Cod Ledge 1½ miles.	10-15	do				
186 Bl.	do			Off Portland, near 185 Bl.	10	do				
187 Bl.	do	43 34½	70 08	Off Portland, SSW. of West Cod Ledge 3 miles.	20-22	do				
188 Bl.	July 18			Casco Bay, off Cow Island.	17	Sandy				T.
189 Bl.	do			do.	13½	Sand and stones				
190 Bl.	do			Casco Bay, between Cow Island and Crow Island.	14	do				
191 Bl.	July 21	43 36½	70 04½	Off Portland, near West Cod Ledge.	28	Mud and stones				
192 Bl.	do			Entrance to Portland Harbor, little west of 122 Bl.	10	Rocky and shelly				
193 Bl.	July 22			Casco Bay, off Whaleboat Island.	(?)	(?)				T.
194 Bl.	July 24			Casco Bay, off Bateman's (Bates?) Island.	13½	Gravel and br. shell				
195 Bl.	do			Casco Bay, between Ministerial and Eagle Islands, the monument on Mark Island showing over north end of Eagle Island.	32	Gravel and stones				
198 Bl.	July 31	43 35½	70 01	Off Portland 1 mile east of East Cod Ledge.	(?)	(?)				
197 Bl.	do			Entrance to Portland Harbor, near 192 Bl.	11	Hard				
198 Bl.	Aug. 4			Casco Bay, Lindcock Grounds, Broad Sound.	12-18	Gravel and shells				
199 Bl.	do	43 46	70 05	Casco Bay, off Chebeag Point.	11½	Mud				
199* Bl.	do	43 43½	70 10	Casco Bay, between Basket and Little Chebeag Islands.	(?)	(?)				
200 Bl.	Aug. 13	43 39½	69 33	Seguin Island, NW. 6 miles (see 152 Bl).	35	Muddy				
201 Bl.	Aug. 20	43 37½	69 51	Seguin Island, NW. 5 miles.	45	Rocky and sandy				
202 Bl.	Aug. 25			Off Portland, East Cod Ledge.	(?)	(?)				
203 Bl.	Aug. 27			Casco Bay, between Peak's Island and Oveset Island.	18	Rock and sponges				
204 Bl.	do	43 37	70 01½	Off mouth Casco Bay, 2 miles off Halfway Rock; the locality mentioned on page 357 of Professor Verrill's Explorations of Casco Bay, Proc. Am. Ass. Adv. Sci., 1873.	27½	Sand, gravel, shells, mud				

205 Bl.	Aug. 28	.....	.....	Casco Bay, off Whale-boat Island	18	Gravel and shells	.....	.....
206 Bl.	Aug. 29	.....	.....	Off mouth of Casco Bay, west of Halfway Rock	(?)	Muddy, etc.	.....	.....
207 Bl.	do	.....	.....	Casco Bay, Broad Sound	(?)	Muddy and hard, mixed	.....	.....
208 Bl.	Aug. 30	.....	.....	Mouth Casco Bay, off Ram Island	18	Sandy, muddy, etc.	.....	.....
209 Bl.	do	43 39	70 08	Mouth Casco Bay, S.W. of Outer Green Island to Long Island	15	Rocky	.....	.....
210 Bl.	do	.....	.....	Casco Bay, off Stepping Stones	12	Muddy ?	.....	.....
211 Bl.	do	43 34 $\frac{1}{2}$	70 07 $\frac{1}{2}$	Off Portland, Cod Ledge Rock	12 $\frac{1}{2}$	(?)	.....	.....
212 Bl.	(?)	43 29 $\frac{1}{2}$	69 30	Cape Elizabeth, WNW. 30 miles	93	Muddy	.....	T.

STATIONS FOR 1874 AND 1875, WITH HEADQUARTERS AT NOANK, CONN.,
AND WOOD'S HOLL, MASS.

In 1874, the headquarters of the United States Fish Commission were established at Noank, Conn., and the area covered by its dredgings included Fisher's Island Sound; the eastern part of Long Island Sound; Block Island Sound; and Gardiner's and Peconic Bays; and also extended some distance to the east, south, and southwest of Block Island. In 1875, with headquarters at Wood's Holl, Mass., dredgings were carried on in Vineyard and Nantucket Sounds; Buzzard's Bay; over a portion of Nantucket Shoals; to the southward of Nantucket Island and Martha's Vineyard; and also on and about Southwest Shoal. The dredgings were all made by the United States steamer *Bluelight*, Commander L. A. Beardslee, and a separate series of numbers, to designate the stations, was employed for each year. To facilitate the recording of all the dredging stations of the United States Fish Commission on charts, and to bring the southern ones into uniformity with those made to the north of Cape Cod in more recent years, and already recorded both on charts and in reports prepared for publication in a single series of numbers ranging from 1 to 378, 400 has been added to the 1874 dredgings and 600 to those of 1875. In this way all the dredging stations from 1874 to 1879, inclusive, are included in a single series.

The temperature observations recorded in the two following tables were mostly taken with much care. Former experiences had proved that the Miller-Casella thermometers were slow in acting, requiring from three to ten minutes (according to the depth of water) to obtain a correct reading, and they were, therefore, always left down a suitable length of time. The bottom and surface temperatures, in nearly all cases, were taken with Miller-Casella self-registering thermometers; occasionally a United States naval thermometer was employed for surface temperatures, and the same instrument was generally employed for the air.

STATIONS FOR 1874.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
	1874.				•	•	•	
401	July 13	Fisher's Island Sound, West Clump, bearing S.	7½	Mud				D.
402	13	Fisher's Island Sound.....	9½	Sand				D.
403	13	do	11½	do				D.
404	13	Fisher's Island Sound, off Lattimer's Reef.	3½	Rocky				D.
405		(No record.)						
406	July 14	Fisher's Island Sound, N. of Young's Rock.	11	Rocky				D.
407	14	Fisher's Island Sound, NW. of Seal Rocks.	9	Sand, stones				D.
408	14	Fisher's Island Sound, N. by E. of Wicopessit.	11½	Clay				D.
409	14	Fisher's Island Sound, Lord's Channel.	11½	Rocky				Tan.
410	14	Fisher's Island Sound, off Napataree Point.	2½	Sand				T.
411	16	Watch Hill Light-House, R. I., NNW., distant about ½ mile.	11	do				D.

STATIONS FOR 1874—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
412	1874. July 16	Watch Hill Light NNE., distant nearly $\frac{1}{2}$ mile.	5	Rocky	o	o	o	Tan.
413	16	.....do	5	.....do .....	.....	.....	.....	Tan.
414	16	Fisher's Island Sound, off Groton Long Point.	7	Gravel .....	.....	.....	.....	D.
415	16	Fisher's Island Sound, Groton Long Point NW. by N. $\frac{1}{2}$ mile.	7	.....do .....	.....	.....	.....	D.
416	17	Fisher's Island Sound, $\frac{3}{4}$ mile W. by N. of N. Hammock Light-House.	6	Sand, mud .....	.....	.....	.....	D.
417	17	Long Island Sound, New London Light N. by W., distant about $2\frac{1}{2}$ miles.	8	Sand .....	.....	.....	.....	D.
418	17	Long Island Sound, New London Light N., distant $1\frac{1}{2}$ miles.	9	Sand, mud .....	.....	.....	.....	T.
419	17	Long Island Sound, Little Gull Island Light bearing S. by E. 2 miles.	40	Gravel .....	.....	.....	.....	D.
420	20	Fisher's Island Sound, $\frac{1}{4}$ mile N. of West Clump.	11 $\frac{1}{2}$	.....do .....	.....	.....	.....	D.
421	20	Fisher's Island Sound, N. Hammock Light W. by S. $\frac{1}{2}$ mile.	12 $\frac{1}{2}$	Sand, gravel .....	.....	.....	.....	D.
422	20	Fisher's Island Sound, N. Hammock Light S. by W. $\frac{1}{2}$ W. $\frac{1}{4}$ mile.	13	.....do .....	.....	.....	.....	D.
423	20	Fisher's Island Sound, N. Hammock Light E. $\frac{1}{2}$ mile.	17	Gravel .....	.....	.....	.....	D.
424	20	Fisher's Island Sound, N. Hammock Light E. by N. 1 mile.	7 $\frac{1}{2}$	Sand, mud .....	.....	.....	.....	D.
425	20	Fisher's Island Sound, N. Hammock Light NE. by E. $\frac{1}{2}$ E. $1\frac{1}{2}$ miles.	10 $\frac{3}{4}$	Mud .....	.....	.....	.....	D.
426	20	Fisher's Island Sound, near Middle Clump.	8	Sand .....	.....	.....	.....	T.
427	22	Fisher's Island Sound, $\frac{1}{4}$ mile NW. of Middle Clump.	11 $\frac{1}{2}$ -9 $\frac{1}{2}$	Sand, shells	65	64	62.5	D.
428	22	Fisher's Island Sound, $\frac{1}{2}$ mile NNW. of Middle Clump.	11	.....do	65	64	62.5	D.
429	22	Fisher's Island Sound, $\frac{1}{2}$ mile NNE. of W. Clump.	8	.....do	65	64	63	D.
430	23	Fisher's Island Sound, Eelgrass Light-Ship E. by W., distant $\frac{1}{2}$ mile.	7	Sand, gravel	66	64	62.5	D.
431	23	Fisher's Island Sound, between Latimer's Reef and Young's Rock.	10 $\frac{1}{2}$	Sand, gravel, shells.	65.5	62.5	61.5	D.
432	23	Fisher's Island Sound, eastward of Latimer's Reef.	11	Coarse sand, shells, rocks.	65	62.5	61	D.
433	24	Fisher's Island Sound, Groton Long Point NE. by N., distant $\frac{1}{2}$ mile.	8	Sand, shells	72	66	63	D.
434	24	Fisher's Island Sound, between Sea-Flower Reef and Groton Long Point.	7	.....do	71	65.5	62.5	D.
435	24	Long Island Sound, Race Point bearing E., distant $2\frac{1}{2}$ miles.	50	Rocky, with mussels.	72	68	59	D.
436	24	Long Island Sound, about $\frac{1}{2}$ mile SW. of 435.	50	Rocks, gravel	68	68	58	D.
437	24	Block Island Sound, off Culloden Point, Long Island.	12 $\frac{1}{2}$	Sand, mud	74	66	61	T.
438	24	Block Island Sound, NW. of Culloden Point, Long Island.	12	Sand .....	.....	.....	.....	D.
439	27	Fisher's Island Sound, eastern part of Sweeper Sound.	4	Sand, shells	70.5	66.5	65	D.
440	27	Fisher's Island Sound, house on Ram Island bearing NE. $\frac{1}{2}$ E.	4	Sand	68.5	66.5	65.5	D.
441	27	Fisher's Island Sound, SW. of Ram Island $\frac{1}{2}$ mile.	3 $\frac{1}{2}$	.....do	68.5	66.5	65	D.
442	27	Fisher's Island Sound, off Middle Clump.	14	Stones, gravel	68.5	66.5	64	D.
443	27	.....do	10 $\frac{1}{2}$	.....do	67	66	64.5	D.
444	29	Fisher's Island Sound, NW. of Eel grass Light-Ship, distant about $\frac{3}{4}$ mile	7	Sand, gravel, shells	.....	.....	.....	D.

STATIONS FOR 1874—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
445	1874. July, 30	Block Island Sound, S.E. $\frac{1}{2}$ E. of Race Rock nearly 3 miles; E. of Little Gull Island Light-House $\frac{5}{8}$ miles.	45	Sand.....	76	62.5	57	D.
446	30	Block Island Sound, $\frac{7}{8}$ mile about W. by S. of 445.	40	do.....				D.
447	30	Block Island Sound, $1\frac{1}{8}$ miles about W. by S. of 445.	24	do.....				D.
448	30	Mouth of Gardiner's Bay, Long Island, Gardiner's Point Light-House S. about $\frac{1}{4}$ mile.	14 $\frac{1}{2}$	Gravel.....	71	66	63.5	D.
449	30	Gardiner's Bay, Long Island....	6 $\frac{1}{2}$	Mud.....	71.5	67.5	64.5	D.
450	30	do.....	4 $\frac{1}{2}$	Sand.....	72	66.5	65	D.
451	30	do.....	3	Gravel.....	72	66.5	65	T.
452	30	do.....	6 $\frac{1}{2}$	Mud.....	69.5	68.5	65	D.
453	31	Block Island Sound, Watch Hill Light N. by W. 3 miles.	18	Sand.....	68	66	56	D.
454	31	Block Island Sound, Watch Hill Light N. by E. 3 miles.	18 $\frac{1}{2}$	Mud, shells.....				T.
455	Aug. 3	Long Island Sound, Bartlett's Reef Light-Ship E. about $1\frac{1}{2}$ miles.	22	Sand, mud.....	60.5	64.5	63.5	D.
456	3	Long Island Sound, Bartlett's Reef Light-Ship E. about $2\frac{1}{2}$ miles.	14	Gravel, sand.....	59	64	63	D.
457	3	Long Island Sound, Bartlett's Reef Light-Ship E. $\frac{1}{2}$ N. about 3 miles.	15 $\frac{1}{2}$	Sand, gravel, shells.....	67	64.5	63.5	D.
458	3	Long Island Sound, Hatchett's Point N.W. about 2 miles.	19	Gravel, shells.....	61.5	64	63	D.
459	3	Long Island Sound, off Saybrook, Conn.	4	Sand.....	67	64.5	63.5	T.
460	3	Long Island Sound, between Cornfield Point and Long Sand Shoal.	9	.....				T.
461	4	Little Peconic Bay, Long Island.	7 $\frac{1}{2}$	Gravel, shells.....	66.5	74	71.5	D.
462	4	do.....	7	Sand, shells.....				D.
463	4	do.....	7	Gravel.....			72	T.
464	4	do.....	13 $\frac{1}{2}$ -10	Sand, gravel.....	67	72	71.5	D.
465	4	do.....	14	Sand, shells.....				D.
466	4	Great Peconic Bay, Long Island.	5 $\frac{1}{2}$	Mud, sand, gravel.....	67.5	74	72	D.
467	4	do.....	5 $\frac{1}{2}$	Sand.....	68	73	72.5	D.
468	4	do.....	4 $\frac{1}{2}$	Gravel.....	66.5	73	72.5	D.
469	4	Little Peconic Bay, Long Island.	9 $\frac{1}{2}$	Sand, shells.....	66	72.5	71	D.
470	4	do.....	4	Sand.....				T.
471	5	Gardiner's Bay, Long Island....	3 $\frac{1}{2}$	do.....		70.5	68	D.
472	5	do.....	4	Sand, shells.....				T.
473	6	Block Island Sound, Watch Hill Light N. $\frac{1}{2}$ W., distant 3 miles.	18-23	Sand.....	63	63	59 { 60 }	T.
474	6	Block Island Sound, Montauk Point SW. $\frac{1}{2}$ S. 6 miles.	17	do.....		63.25	60	D.
475	6	Block Island Sound, Block Island Light ENE., distant about 3 miles.	19 $\frac{1}{2}$	Mud.....		63.5	60	D.
476	6	Block Island Sound, Block Island Light SE. by E. $\frac{1}{2}$ E. about 4 miles.	18 $\frac{1}{2}$	Sand, mud.....		64	60	D.
477	6	Block Island Sound, Block Island Light ESE., about 7 miles.	19	Mud.....		64	59	D.
478	6	Block Island Sound, Watch Hill Light N.W. $\frac{1}{2}$ W. about 4 miles.	24	Sand.....	70	64	58.5	D.
479	6	Block Island Sound, Watch Hill Light N.W. $\frac{1}{2}$ N. about 3 miles.	22	Sand, shells.....				T.
480	10	In West Harbor of Fisher's Island.	4	Sand.....	74	66.5	65.25	D.
481	10	do.....	3 $\frac{1}{2}$	do.....	74	66.5	65.25	D.
482	10	In West Harbor of Fisher's Island, off Clay Point.	5 $\frac{1}{2}$	Sand, mud.....	74	66.5		T.
483	10	Off Hawk's Nest Point, inner side of Fisher's Island.	5 $\frac{1}{2}$ -2 $\frac{1}{2}$	Sand, gravel, to mud and weeds.	74			T.
484	10	Fisher's Island Sound, between Middle Clump and Ram Island and Reef.	12 $\frac{1}{2}$	Mud, shells.....	73.5	69	64.75	D.
485	11	Block Island Sound, about 1 mile S. of E. end of Fisher's Island.	15	Sand.....	75	66	61	D.

STATIONS FOR 1874—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
486	1874. Aug. 11	Block Island Sound, about $\frac{3}{4}$ mile S. of E. end of Fisher's Island.	8 $\frac{1}{2}$	Sand.....	75	65.5	62.5	D.
487	11	Block Island Sound, about $\frac{3}{4}$ mile off centre of Fisher's Island.	8	Stones.....	72	65.5	63	D.
488	11	Block Island Sound, off Mount Prospect, Fisher's Island, about $\frac{1}{4}$ mile from land.	7 $\frac{1}{2}$	....do.....	76	66.5	63	D.
489	11	Block Island Sound, about $\frac{1}{2}$ mile westward of 488.	6	Stones, gravel....	78	66.5	63.25	D.
490	11	Block Island Sound, about $\frac{3}{4}$ mile SE. of Race Point.	5 $\frac{1}{2}$	....do.....	76.5	66.5	63.25	D.
491	11	Block Island Sound, about $1\frac{1}{4}$ miles S. of Mount Prospect.	32 $\frac{1}{2}$	Sand, shells.....	75	66.5	58.5	T.
492	12	Noank Harbor.....	2	Mud.....	76	67.5	62.5	D.
493	12	Fisher's Island Sound, between Sea-Flower and Horse-Shoe Reefs.	4 $\frac{1}{2}$	Sand.....	76	67.5	62.5	D.
494	12	....do.....	4 $\frac{1}{2}$	Sand, gravel.....	75	67	64.5	D.
495	12	Fisher's Island Sound, W. of Sea-Flower Reef Beacon.	6	Fine sand and mud.....	67	67	64.5	T.
496	12	Fisher's Island Sound, W. of Sea-Flower Reef Beacon about 1 mile.	6	Sand, mud.....	72	67	64.5	T.
497	13	Block Island Sound, Montauk Point Light SSE. about 6 miles.	15 $\frac{1}{2}$	Sand.....	74	65	64	D.
498	13	Block Island Sound, Montauk Point Light SSE. about 6 $\frac{1}{2}$ miles.	9	Fine sand and gravel.	71	65	64	D.
499	13	Block Island Sound, Montauk Point Light SSE. about 7 $\frac{1}{4}$ miles.	5 $\frac{1}{2}$	Coarse sand and rocky.	72	65	64	D.
500	13	Block Island Sound, Montauk Point Light S. by E. $4\frac{1}{2}$ miles.	19	Fine sand.....	72	65	63.5	D.
501	13	Block Island Sound, Montauk Point Light S. by W. about 3 miles.	20-8	Sand, shells.....	72	66	63.5	D.
502	13	Block Island Sound, Montauk Point Light SSW. about 2 $\frac{1}{2}$ miles.	8	Stony.....	72.5	65	65	D.
503	13	Off Montauk Point, Light-House WSW. about 2 miles.	7 $\frac{1}{2}$	Rocky.....	72	65	64.5	D.
504	13	Off Montauk Point, Light-House W. about 2 miles.	7 $\frac{1}{2}$	....do.....	72	65	64.5	D.
505	14	Fisher's Island Sound, between Eelgrass Light-Ship and White Rock.	5 $\frac{1}{2}$	Sand, gravel.....	67	66	64.5	D.
506	14	Fisher's Island Sound, about 1 mile E. by N. from Eelgrass Light-Ship.	6	....do.....	67	.....	.....	D.
507	14	Fisher's Island Sound, Stonington Light NE. $\frac{1}{4}$ E. about 1 mile.	5	Sand.....	67	.....	.....	T.
508	14	Fisher's Island Sound, Eelgrass Light-Ship WNW. $\frac{3}{4}$ mile.	5 $\frac{1}{2}$	Rocky.....	67	.....	.....	D.
509	17	Fisher's Island Sound, Eelgrass Light-Ship NW. by W. about $\frac{1}{4}$ mile.	7	Stones.....	69.5	67	63	D.
510	17	Fisher's Island Sound, Eelgrass Light-Ship WNW. 1 mile.	6 $\frac{1}{2}$ -3 $\frac{1}{2}$	Sand, rocky.....	69.5	67	63	D.
511	17	Fisher's Island Sound, Eelgrass Light-Ship W. by N. about 1 $\frac{1}{4}$ miles.	5 $\frac{1}{2}$	Hard, rocky.....	69	.....	.....	Tan.
512	17	Fisher's Island Sound, Stonington Light ENE. about 1 $\frac{1}{2}$ miles.	4	Sand.....	69	66.5	60.5	D.
513	17	Fisher's Island Sound, Eelgrass Light-Ship W. $\frac{1}{2}$ N. about 1 mile.	7	Hard, stones.....	70	67	63	D.
514	17	Fisher's Island Sound, Eelgrass Light-Ship E. about 1 mile.	7 $\frac{1}{2}$	Sand.....	70	66.5	63	D.
515	18	Off Block Island, Montauk Point W. about 9 miles.	20	....do.....	71	66	47.5	D.
516	18	Off Block Island, Montauk Point NW. by W. $\frac{1}{4}$ W. about 11 miles.	25	Sand, shells.....	70	67.5	45.5	D.
517	18	....do.....	23 $\frac{1}{2}$	....do.....	70	.....	.....	D.
518	18	....do.....	23 $\frac{1}{2}$	....do.....	70	.....	.....	D.
519	18	Off Block Island, Old Harbor Point, Block Island N. 5 miles.	11	Sand, stones.....	67	65	.....	D.

STATIONS FOR 1874—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
520	1874. Aug. 18	Off Block Island; Old Harbor Point, Block Island, N. 5 miles.	11	Sand, stones	70	o	o	D.
521	18	Off New Shoreham, Block Island	14	Gravel, stones	70	66	57.5	D.
522	18	do	18	Sand, gravel	70	66.5	52.5	D.
523	19	Off Block Island, New Shoreham NW. by N. about 6 miles.	14	do	73	66.5	54	D.
524	19	Off Block Island, New Shoreham NNW.	14½	Coarse sand	73	66	50.5	D.
525	19	Off Block Island, SE. side	14½	Gravel	69.5	66.5	53	D.
526	19	SE. from Point Judith, Rhode Island, about 4 miles.	13½	Sand, gravel	75	67.5	54.5	D.
527	19	S. from Point Judith, Rhode Island, about 2½ miles.	9	Stones	69.5	61		D.
528	19	W. from Point Judith, Rhode Island, about 3 miles.	4	Rocks, sand	76	67.5	63	D.
529	19	Off Narragansett Beach, Rhode Island.	8½	Sand, gravel				T.
530	19	do	10½	Stones, gravel				T.
531	21	Block Island Sound, Watch Hill Light N. ½ E., distant 3 miles.	21	Sand	80	67.25	56.5	D.
532	21	Block Island Sound, SW. ¾ S. of No. 531, distant ½ mile.	20	do	80	67.25		T.
533	21	Block Island Sound, WSW. of No. 531, distant ½ mile.	17½	do	79.5	67.25		T.
534	21	Block Island Sound, about S. ¾ E. of east point of Fisher's Island ¾ mile.	9	Gravel	78	66.5	63.5	D.
535	21	Block Island Sound, east end of Fisher's Island N. by E. about 2 miles.	19½	Sand	78	67	57.5	D.
536	24	Fort Pond Bay, east end of Long Island.	7½	Mud	76	73.5	65.5	D.
537	24	Off Fort Pond Bay, east end of Long Island.	6½	Sand, gravel				T.
538	24	Napeague Bay, off Culloden Point, Long Island.	8½	Sand		67.5	65.5	D.
539	24	Napeague Bay, east end of Long Island.	5-8	do				T.
540	24	do	6-7	do				D.
541	24	Block Island Sound, Race Point N. about 1½ mile.	42	Stony	70.5	66		D.
542	25	Off Hay Harbor, west end of Fisher's Island.	4½	Sand	70	65.5	64.5	D.
543	25	Off west end of Fisher's Island, Race Point about S., distant ½ mile.	7½	Mud, sand	70	65.5	64.5	D.
544	25	Off west end of Fisher's Island, Race Point SSE, 1 mile.	8½	Fine sand				T.
545	25	Off west end of Fisher's Island, Race Point about S. ¼ mile.	5½	Rocks				D.
546	25	Fisher's Island Sound, between East Clump and Ram Island buoy.	7½	Hard	74.5	65.5	65	D.
547	25	do	14	do				D.
548	25	Fisher's Island Sound, ESE. from house on Ram Island.	7½	do				D.
549	27	Off Niantic Bay, Connecticut, W. of Two-Tree Island.	5	Sand	70.5	65	64	D.
550	27	Off Niantic Bay, Connecticut, between Black Point and Two-Tree Island.	5½	do				T.
551	27	do	5½	do				D.
552	27	Long Island Sound, off Saybrook	6	do				D.
553	27	Long Island Sound, Saybrook Light NE. 2 miles.	7½	do				T.
554	27	Long Island Sound, Plum Island Light SE. by E. 3 miles.	22	Gravel	73.5	66	65	D.
555	27	do	26	do	73.5	66	65	D.
556	30	Off Cox Ledge, ESE. from Block Island about 20 miles. (The shallowest part of Cox Ledge lies in about 41° 11½' N. Lat. and 71° 02' W. Long.)	20	Rocky				D.
557	30	Off Cox Ledge	21	Sand, rocks	67	62	51.5	D.
558	30	do	21	do				Tan.
559	30	do	21	do				D.

STATIONS FOR 1874—Concluded.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
560	1874. Aug. 30	About 11 miles SE. by E. from Old Harbor Point, Block Island.	21	Rocky	°	°	°	Tan.
561	30	About 10 miles SE. by E. from Old Harbor Point, Block Island.	34	Mud	70	64	52	D.
562	30	do	34	do	70	64	52	D.
563	31	Block Island Sound, Watch Hill Light N. by W. about 3½ miles.	19	Sand				T.
564	31	Block Island Sound, Watch Hill Light N. by W. ½ W. about 3½ miles.	18	Sand				O. T.
565	31	Block Island Sound, Watch Hill Light NNW. about 3½ miles.	17	do				O. T.
566	31	Block Island Sound, Watch Hill Light NNW. about 3½ miles.	18	do				D.
567	Sept. 2	do	18	do				D.
568		On Cox Ledge	19½	Rocky				D.
569		do	20	Sand				D.
570		do	18½	Rocky				D.
571		do	21	do				D.
572		do	21	do	72.5	62.5	50	D.
573		do	18½	do				D.
574		do	19	do				D.
575		do	18	do				D.
576		do	17	do				D.
577		do	19	do				D.
578	3	Crab Ledge, about 7 miles SE. of Block Island.	10½	do				D.
579	3	Crab Ledge, about 8 miles SE. of Block Island.	10½	do				D.
580	3	About 7 miles off New Shoreham, Block Island.	8-10	do				D.

(There are no numbers 581-600.)

STATIONS FOR 1875.

601	1875. July 12	Vineyard Sound, Tarpaulin Cove Light W. by S. Job's Neck NE. by E. ¼ E.	11½	Sand, gravel	70			D.
602	12	Vineyard Sound, Tarpaulin Cove Light WSW. 1 mile.	11		70			D.
603	12	Vineyard Sound, Tarpaulin Cove Light NW. by W. ¾ mile.	17		70			D.
604	12	Vineyard Sound, Menemsha Bight.	8		70			D.
605	12	do	5-7					D.
606	12	do	5-7					D.
607	14	Vineyard Sound, Lackey's Bay.	6½	Gravel				D.
608	14	Between Martha's Vineyard and No Man's Land, Gay Head Light N. ¼ E. 2½ miles.	10	Sand, shells.				D.
609	14	North of No Man's Land, Lone Rock S. ¾ mile.	6	Rocky				D.
610	14	North of No Man's Land	4	Sand				T.
611	14	do	5	do				D.
612	14	Vineyard Sound, Menemsha Bight.	8	do				T.
613	14	Vineyard Sound, Tarpaulin Cove.	14½	Gravel				D.
614	15	Vineyard Sound, S. and E. of Davis Neck Shoal.	5½	Sand				D.
615	15	Vineyard Sound, S. of Monant Point.	15	Sand, gravel				D.
616	15	Vineyard Sound, off Davis Neck Shoal.	13	Sand				T.
617	15	Vineyard Sound, off East Chop of Holmes' Hole.	13½	Hard				D.
618	15	Vineyard Sound, off Falmouth..	4½	Sand				T.
619	15	do	5	do				T.
620	20	Vineyard Sound, Cuttyhunk Light NW. by N. 2¼ miles, Sow and Pigs Light-Ship W. by N.	14	Hard				D.

STATIONS FOR 1875—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
621	1875. July 20	Vineyard Sound, Cuttyhunk Light NW. by N. $3\frac{3}{8}$ miles, Sow and Pigs Light-Ship WNW.	19	Hard	°	°	°	D.
622	20	Vineyard Sound, Cuttyhunk Light N. $1\frac{1}{2}$ miles, Sow and Pigs Light-Ship W. by N.	10	.....	.....	.....	.....	D.
623	20	do .....	.....	.....	.....	.....	.....	D.
624	20	Vineyard Sound, Menemsha Light.	.....	.....	.....	.....	.....	T.
625	21	Nantucket Sound; Oak Bluffs Hotel W. by S., W. end of Squash Meadow E. by N.	5	Sand .....	.....	.....	.....	D.
626	21	Nantucket Sound, between Oak Bluffs and Squash Meadow.	6	do .....	.....	.....	.....	D.
627	21	do	6	do .....	.....	.....	.....	T.
628	21	Nantucket Sound, Oak Bluffs NW., Cape Poge SE. by E.	$5\frac{1}{2}$	do .....	.....	.....	.....	T.
629	21	Nantucket Sound, about same as 628.	$5\frac{1}{2}$	do .....	.....	.....	.....	T.
630	21	do	5	do .....	.....	.....	.....	D.
631	26	Nantucket Sound, Cross-Rip Light-Ship E. by S. $\frac{1}{2}$ mile.	$10\frac{1}{2}$	Sand	76	69	68.5	D.
632	26	Nantucket Sound, close to Cross-Rip Light-Ship.	$11\frac{1}{2}$	Sand, gravel, shells.	76	69	69	D.
633	26	Nantucket Sound, Cross-Rip Light-Ship W. by S. $\frac{3}{4}$ mile.	12	Sand, gravel	76	69	69	D.
634	26	Nantucket Sound, Cross-Rip Light-Ship WNW. about 1 mile.	10	do	76	69	69	D.
635	26	Nantucket Sound, Brant Point Light, Nantucket, S. by E. 4 miles.	$7\frac{1}{2}$	Muddy sand	76	71	69.5	D.
636	26	Nantucket Sound, Brant Point Light SSE, $2\frac{1}{4}$ miles.	8	Mud	76	.....	.....	D.
637	28	Nantucket Shoals, Sankoty Head Light west, distant 10 miles.	16	Sand, shells .....	.....	59	58	D.
638	28	Nantucket Shoals, about same as 637.	$15\frac{1}{2}$	do .....	.....	59	58	T.
639	28	Nantucket Shoals, Sankoty Head Light west about 9 miles.	14	Sand .....	.....	60	59	D.
640	28	Nantucket Shoals (a little S. of 639?).	11	Sand, shells .....	.....	60	59	D.
641	Aug. 4	Buzzard's Bay, Woepecket buoy W. by S. $\frac{3}{4}$ mile.	7	do	75	.....	.....	D.
642	4	Buzzard's Bay	8	Hard .....	.....	68	67	D.
643	4	do	5	Sand .....	.....	69	69	D.
644	4	do	5	do	75	69	69	D.
645	4	Buzzard's Bay, buoy No. 8 off Scraggy Neck NE. $\frac{1}{2}$ mile.	6	Sand, shells .....	.....	.....	.....	D.
646	4	Buzzard's Bay, off Cataumet Harbor.	6	Sand	75	.....	.....	T.
647	4	do	6	do	75	.....	.....	T.
648	4	Buzzard's Bay	6	do	75	.....	.....	D.
649	5	Vineyard Sound, Tarpaulin Cove Light N. 1 mile.	16	Hard	71	.....	.....	D.
650	5	do	18	do	71	68	67	D.
651	5	Buzzard's Bay, $\frac{3}{4}$ mile N. of Fenikese.	16	Sand .....	.....	65	64	D.
652	5	do	16	do .....	.....	.....	.....	D.
653	5	Buzzard's Bay	$8\frac{1}{2}$	Mud	71	68	66	D.
654	5	do	$9\frac{1}{2}$	Soft mud	71	.....	.....	D.
655	5	do	10	Sand, mud .....	.....	.....	.....	T.
656	5	do	8	Mud	71	68.5	66	D.
657	5	do .....	.....	do	71	.....	.....	D.
658	10	About $\frac{3}{4}$ mile off Gay Head ..	9	Gravel .....	.....	66	64	D.
659	10	do	9	Hard	73	66	64	D.
660	10	do	9	do	73	66	64	D.
661	10	About $1\frac{1}{2}$ miles off Gay Head ..	13	Shells .....	.....	67	65	D.
662	10	Vineyard Sound	10	Sand .....	.....	.....	.....	T.
663	10	Vineyard Sound, off Tarpaulin Cove.	$14\frac{1}{2}$	Hard .....	.....	68	66	D.
664	10	do	16	do .....	.....	67.5	66.5	D.
665	10	do	$13\frac{1}{2}$	Hard .....	.....	67.5	.....	D.

STATIONS FOR 1875—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
666	1875. Aug. 11	Off Chappaquiddick, SE. part of Martha's Vineyard.	3	Sand.....	o	o	o	T.
667	11	do.....	5	Sand, stones.....	72	71.5	71	D.
668	11	do.....	6	Sand, gravel.....	72	.....	.....	D.
669	11	Off Skiff Island, at SE. corner of Martha's Vineyard.	7	Mud, shells.....	72	.....	.....	D.
670	11	do.....	29	Sand.....	74	68	66	D.
671	12	Great Point, Nantucket Island W. 5 miles.	7½	do.....	72	56	56	D.
672	12	do.....	8	do.....	72	56	56	D.
673	12	do.....	9	do.....	72	.....	.....	T.
674	12	Sankoty Head, Nantucket Island, W. 1 mile.	6½	Sand, gravel.....	72	67	66	D.
675	12	Sankoty Head, Nantucket Island, WNW. 2 miles.	16	Hard.....	72	66	65	D.
676	12	A little west of 675.....	9	do.....	76	.....	.....	D.
677	12	Sankoty Head, Nantucket, NW. 1 mile.	7½	do.....	77	.....	.....	T.
678	12	Sankoty Head, Nantucket, W. ½ mile.	4½	Sand, shells.....	78	.....	.....	T.
679	13	Nantucket Sound, off west side Nantucket Island.	5½	do.....	80	76	70	D.
680	13	do.....	7	Mud.....	80	.....	70.5	D.
681	13	do.....	5	Sand.....	80	71.5	71	D.
682	13	Nantucket Sound, Cross-Rip Light-Ship NW. 2½ miles.	10	Shells, sand.....	79	.....	.....	D.
683	13	Nantucket Sound, Cross-Rip Light-Ship E. about 3 miles.	10½	Sand.....	79	71	70.5	D.
684	13	Nantucket Sound, Cross-Rip Light-Ship E., Cape Poge Light SSW. 2½ miles.	10½	do.....	.....	71	71	D.
685	13	Vineyard Sound, off Falmouth..	5	do.....	78	.....	.....	T.
686	17	Buzzard's Bay, off Nye's Neck..	7½	Mud, hard.....	.....	76	.....	T.
687	17	do.....	6	Sandy mud.....	.....	.....	.....	T.
688	17	do.....	5	do.....	.....	.....	.....	D.
689	17	do.....	7	Sand.....	.....	.....	.....	D.
690	17	do.....	8	Sand, mud.....	.....	.....	.....	D.
691	17	Buzzard's Bay, off Wild Harbor, near N. Falmouth.	8	Sand, gravel.....	75	.....	.....	D.
692	17	Buzzard's Bay, off West Falmouth ½ mile.	7½	Shells, gravel.....	75	.....	72	D.
693	17	Buzzard's Bay, SW. of No. 692 about ½ mile.	7	Mud.....	75	76	73	D.
694	17	Buzzard's Bay, off Hamlin Point.	3½	Hard.....	75	.....	.....	D.
695	17	do.....	5	do.....	75	75.5	70.5	D.
696	17	Buzzard's Bay, off Quamquissett Harbor.	7	Sand, mud.....	75	78.5	70.5	D.
697	23	Vineyard Sound, S. entrance to Quick's Hole.	7½	Stony, mussels.....	.....	67	67	D.
698	23	do.....	6	Sand, rocks.....	64	68.5	68.5	D.
699	23	Vineyard Sound, off Quick's Hole.	7½	do.....	64	.....	.....	D.
700	23	Vineyard Sound, south of Cuttyhunk Light 1 mile.	9½	Sand.....	.....	66	65.5	D.
701	23	Vineyard Sound, off Cuttyhunk Light 1 mile.	9	Rocky.....	64	.....	.....	D.
702	23	Near mouth of Buzzard's Bay, Cuttyhunk Light ESE. 1 mile.	8½	Gravel.....	.....	66	65	D.
703	23	Vineyard Sound, off south side of Cuttyhunk Island.	9	.....	.....	.....	.....	T.
704	23	do.....	9	.....	.....	.....	.....	T.
705	23	Vineyard Sound, off Robinson's Hole.	15	Sand, gravel.....	66	68.5	66	D.
706	25	Vineyard Sound, off Falmouth..	4	.....	69	.....	.....	T.
707	25	do.....	4	.....	.....	.....	.....	T.
708	25	do.....	6	Sand.....	68.5	73	72	D.
709	25	do.....	5	.....	.....	.....	.....	D.
710	31	Vineyard Sound.....	9	Hard.....	76	69	69	D.
711	31	do.....	10	do.....	76	68.5	69	D.
712	31	do.....	13	do.....	76	69	69	D.
713	31	do.....	8	Shells, gravel.....	76	70	69.5	D.
714	31	do.....	6	.....	76	70	69.5	D.
715	31	do.....	13	Hard, gravel.....	75	70	70	D.
716	Sept. 1	Off Gay Head, 3 miles SW. buoy No. 25.	17	Mud.....	.....	66	61.5	D.
717	1	Southwest of Gay Head, distant 4 miles.	19	do.....	.....	66	60	D.

STATIONS FOR 1875—Continued.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
718	1875. Sept. 1	Southwest of Gay Head, distant $6\frac{1}{2}$ miles.	19	Mud, sand.....	o	65.5	60	D.
719	1	Southwest of Gay Head, distant 8 miles.	19	Hard, sand.....		60	58.5	D.
720	1	Southwest of Gay Head, distant $8\frac{1}{2}$ miles.	19	Sand.....				T.
721	1	Southwest of Gay Head, distant 10 miles.	12	Hard.....				D.
722	1	Southwest of Gay Head, distant 11 miles.	14	do.....				D.
723	1	Off NW. end of Devil's Bridge Reef, Gay Head.	9	Rocky.....				D.
724	1	do.....	9	do.....				D.
725	3	South of Cape Poge, Martha's Vineyard, in north part of Muskeget Channel.	4-13	Sand.....				T.
726	3	About the same as 725.....	5	Sand, eelgrass.....				D.
727	3	do.....	4	do.....				D.
728	3	do.....	1-4	do.....				D.
729	3	About $3\frac{1}{2}$ miles SE. of Cape Poge.	73	Hard.....				T.
730	3	About 4 miles SSE. of Cape Poge.	9	Sand, gravel.....				D.
731	3	About $\frac{3}{4}$ mile S. of No. 730.....	9	do.....				D.
732	-----	(No record.)						
733	6	Off Martha's Vineyard.....	6	Hard.....			62	D.
734	-----	(No record.)						
735	6	Off Martha's Vineyard, $1\frac{1}{2}$ miles SE. of Squipnocket Point.	11	Sand.....			60	D.
736	-----	(No record.)						
737	-----	(No record.)						
738	7	Off Nantucket, $\frac{1}{2}$ mile S. of Tuckernuck Island.	33	Sand.....			65	D.
739	7	Off Nantucket, off S. side of Tuckernuck Island.	8	Coarse sand.....			65	D.
740	7	do.....	83	Sand.....				T.
741	7	do.....	11	do.....				D.
742	-----	(No record.)						
743	8	2 miles S. of Great Round Shoal buoy, $6\frac{1}{2}$ miles a little NE. of Great Point, Nantucket.	153	Fine sand.....	65	60	58.5	D.
744	8	3 miles SE. of Great Round Shoal buoy, 9 miles from Great Point.	18	Sand, shells.....	65		58.5	D.
745	8	4 miles SSE. of Great Round Shoal buoy, 9 miles from Great Point.	153	Sand.....			59	D.
746	8	Off Nantucket, N. of McBlair's Shoal.	13	do.....				T.
747	8	do.....	133	do.....				T.
748	8	do.....	133	do.....				T.
749	8	do.....	133	do.....				D.
750	15	8 miles east of Great Point, Nantucket.	15	Sand.....				D.
751	15	9 miles east of Great Point, Nantucket.	13	do.....				
752	15	8 miles east of Great Point, Nantucket.	20	do.....				
753	15	9 miles east of Great Point, Nantucket.	10	do.....				
754	15	11 miles east of Great Point, Nantucket.	10	do.....				
755	15	12 miles east of Great Point, Nantucket.	10	do.....				
756	15	15 miles east of Great Point, Nantucket.	9	do.....				
757	15	do.....	9	do.....				
758	15	163 miles east of Great Point, Nantucket.	6	do.....				
759	15	73 miles east of Great Point, Nantucket.	9	do.....				
760	15	7 miles east of Great Point, Nantucket.	15	do.....				
761	15	73 miles east of Great Point, Nantucket.	10	do.....				
762	20	Off Southwest Ledge, Gay Head NE. $11\frac{1}{2}$ miles.	163	Gravel.....	64		60	D.

STATIONS FOR 1875—Concluded.

Serial number.	Date.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus.
					Air.	Surface.	Bottom.	
763	1875. Sept. 20	Off Southwest Ledge, $\frac{1}{2}$ mile W. of 762.	17	Gravel, sand	64	60	60	D.
764	20	Off Southwest Ledge, $\frac{1}{2}$ mile S. of 762.	17	Sand, gravel	64	60	60	D.
765	20	Off Southwest Ledge, $\frac{1}{2}$ mile W. of 763.	17	do	64	60	60	D.
766	20	On Southwest Ledge, $\frac{1}{2}$ mile NW. of 765.	17	do	64	60	60	D.
767	20	Off Southwest Ledge, $1\frac{1}{2}$ miles W. of No. 762.	18	do	64	60	60	D.
768	20	9 miles SW. of Gay Head	20	do	64	60	60	D.
769	20	6 miles SW. $\frac{1}{2}$ W. of Gay Head..	20	do	64	60	60	D.

STATIONS FOR 1877, 1878, AND 1879, WITH HEADQUARTERS AT SALEM, MASS., HALIFAX, N. S., GLOUCESTER AND PROVINCETOWN, MASS.

During these three years the dredgings were carried on from the U. S. Str. Speedwell, commanded in 1877 by Lieut. Commander A. G. Kellogg, in 1878 by Lieut. Commander L. A. Beardslee, and in 1879 by Lieut. Z. L. Tanner. In 1877, headquarters were first established at Salem, and the stations made from there covered the northern part of Massachusetts Bay, and portions of the Gulf of Maine, off Cape Ann. During the session of the commission of arbitration on the fishery claims, however, the headquarters were removed to Halifax, N. S., and dredgings were made in the waters off that coast, from the last of August to the first of October. The Speedwell also made a line of stations on her trip across the Gulf of Maine, from Cape Ann to Cape Sable, N. S. In 1878, with headquarters at Gloucester, Mass., the area dredged over included the northern and central parts of Massachusetts Bay, and the Gulf of Maine, off Cape Ann. In 1879, the dredging grounds were the southern part of Massachusetts Bay, and the Gulf of Maine, off Cape Cod. The bottom temperatures in 1877 were mostly taken with Miller-Casella self-registering, deep-sea thermometers, but in 1878 and 1879 Negretti-Zambra thermometers were used for that purpose. All the temperatures for 1879 were taken with more than usual care, the thermometers employed being frequently compared with a reliable standard.

DREDGINGS BY SPEEDWELL, 1877.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
							Air.	Surface.	Bottom.	
1	1877. Aug. 4	42 30	70 45	A little S. of E. from Salem, 4 miles SSE. of Baker's Island.	22	Gravelly	71	{ 63 65	{ 46	D.
2	do			Same as No. 1	22	do				T.
3, 4	do			NW. of No. 1	22	do	72 { 60 62	{ 45 45	{ 45	D.
5	do	42 28	70 42	Baker's Island NW. by N. 5½ miles, Eastern Point (south of Gloucester) NNE. 6½ miles.	33	Sand and mud	72			D.
6	do			do		do				T.
7	do			do		do				T.
8	Aug. 6			Halfway Rock NW. by W., Baker's Island NW. by N. ½ N. (true), close to No. 1.	20	Rocky	70	63½	55	D.
9	do			S. of No. 8	25	Gravelly	69	63½	52½	Tan.
10	do			Same as No. 8	20½	do	69½	64½	50½	D. and Tan.
11	do	42 26	70 37	Thatcher's Island Lights NE. by E. ½ E. 12½ miles, Baker's Island Light NW. ½ N. 10 miles.	45	Mud	70	64½	48½	D.
12	do			Same as No. 11						D.
13	do			1 mile E. of No. 12	50					T.
14	do			do						T.
15	Aug. 7			Baker's Island NNW. ½ W. 3 miles, Halfway Rock NW. by W. 1½ miles, near Nos. 1 to 4, and 8 to 10.	19½	Gravelly	69	66	54½	D.
16	do			Same as No. 15						Tan.
17	Aug. 8			Halfway Rock NW. by W. 3 miles, Baker's Island Light, NW. by N. 4½ miles between Nos. 5 and No. 1	32					T.
18	do	42 29	70 38	Halfway Rock W. by N. ½ N. 6½ miles, Eastern Point Light N. ½ W. 5½ miles.	45	Mud				T.
19	do			A bout same place	45	do				T.
20	do			do	45	do				T.
21, 22	Aug. 10			do	26	Hard gravel and stones				D.
23	do			Halfway Rock W. by N. ½ N. 1½ miles, Baker's Island NW. ½ N. 3 miles, near No. 1.	35	Mud and clay nodules				T.
24	Aug. 13	42 30	70 41	Halfway Rock W. by N. ½ N. 6 miles, Eastern Point Light N. ½ E. 5½ miles, near Nos. 18 to 20.	33	Soft mud	70	67½	49½	D.
25	do	42 27½	70 36	Halfway Rock W. by N. ½ N. 4½ miles, Eastern Point Light N. by E. ½ E. 7 miles.	48	do	69	67½	49½	D.
26-30	do			Halfway Rock NW. by W. ½ W. 6½ miles, Eastern Point N. by W. ½ W. 8 miles.	48	do				T.
31	do			Same as No. 25	48-50	Mud				T.
32	Aug. 14	42 30	70 20	Thatcher's Island Light NW. ½ N. 13½ miles, Halfway Rock W. by N. 20 miles.	90	do	78	68	{ 38½ 39	{ T. T.

No.	Date	Locality	Depth	Bottom	Direction	Force	Remarks
33	Aug. 19	Same as No. 32	69	39			
34	Aug. 19	Gulf of Maine, Cape Ann W. by N. 42 miles.	42	37			
35	Aug. 20	Nearly the same as No. 34.	42	39			
36	Aug. 20	Gulf of Maine, 155 miles E. of Cape Ann.	42	39			
37	Aug. 20	Gulf of Maine.	42	42			
38	Aug. 20	do.	42	44			
39	Aug. 20	do.	42	44			
40	Aug. 20	About 2 miles N. of No. 39.	42	46			
41	Aug. 20	W. of Brown's Bank.	42	49			
42	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 32 miles	43	04 $\frac{1}{2}$			
43	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 31 miles	43	05 $\frac{1}{2}$			
44	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 30 miles	43	06			
45	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 28 miles	43	06			
46	Aug. 21	SE. by S. from Cape Sable about 27 miles.	43	05 $\frac{1}{2}$			
47	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 22 miles	43	10			
48	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 20 miles	43	11			
49	Aug. 21	SE. $\frac{1}{2}$ S. from Cape Sable about 18 miles	43	13			
50	Aug. 21	Off Cape Negro, Nova Scotia, SE. $\frac{1}{2}$ S. from Cape Sable 17 miles.	43	14			
51	Aug. 21	do.	43	14			
52	Aug. 21	Off Shelburne, Nova Scotia, 10 miles south.	43	26 $\frac{1}{2}$			
53	Aug. 25	In Bedford Basin, north of Halifax	43	25			
54	Aug. 25	do.	43	54			
55	Aug. 25	do.	43	55			
56	Aug. 25	do.	43	55			
57	Aug. 25	do.	43	55			
58	Aug. 25	do.	43	55			
59	Aug. 28	Halifax Outer Harbor: $\frac{1}{2}$ mile SSW. Rock Head buoy	49	59			
60	Aug. 28	Halifax Outer Harbor: $\frac{1}{2}$ mile N. Rock Head buoy	49	59			
61	Aug. 28	Halifax Harbor, between Mars Rock and York Redoubt buoy, $\frac{1}{2}$ mile distant.	49	59			
62	Aug. 28	Bedford Basin, $\frac{1}{2}$ across harbor from Navy Island	49	59			
63	Aug. 29	do.	49	59			
64	Aug. 29	do.	49	59			
65	Aug. 29	do.	49	59			
66	Aug. 29	do.	49	59			
67	Aug. 29	do.	49	59			
68	Aug. 29	Narrows at mouth of Bedford Basin, drifting in.	49	59			
69	Sept. 1	About 120 miles S. of Halifax	42	44			
70	Sept. 1	do.	42	45 $\frac{1}{2}$			
71	Sept. 1	About 118 miles S. of Halifax	42	46			
72	Sept. 4	Sandwich Point (Halifax Harbor) W. $\frac{1}{2}$ N. $\frac{1}{2}$ miles	42	46			

* Estimated.

† Inside pilot-house.

†Inside pilot-house.

	Sept. 15	44	28	63	18	Mud and fine sand	01	61	{ 46 46½ }	T.
98	Sept. 15									
99	do									
100	do	44	28	63	18	Shingle	65	61½	{ 34 34½ }	T.
101	do					Fine sand with Ophioglypha				
102	do					Rocks and sand				
103	Sept. 20	44	02	63	20	Gravelly and rocky	64	63	{ 35½ 36½ }	T.
104	do	44	01	63	20	Fine sand and mud			{ 35½ 36½ }	D.
105	do					do			{ 36½ 37½ }	D.
106-108	do					do				
109	Sept. 21					do	57	57½	34	T. and T.
110, 111	do					Fine sand and mud	64	60	35	T.
112	Sept. 24					do			35	T.
113	do					do	52			T.
114-117	do					Sand, mud, to rocks				T.
118	do					do				T.
119	Sept. 27					do				T.
120	do					do				T.
121	do					do				T.
122	do					do				T.
123	do					do	72	58	36	T.
124	Oct. 17	42	52	70	22½	Mud, gravel, and rocks	50	52	45	D.
125	do					do				D.
126	do					do				D.
127	do					do	52			D.
128	do	42	31½	70	37	Mud and fine sand		55	43½	D.

DREDGINGS BY SPEEDWELL, 1878.

	1878	42	24	70	33½		49	60½	38	T.
129	July 23					Thatcher's Island Light N. ½ E. 13½ miles, Eastern Point N. by W. ½ W. 11½ miles.	65			
130	do					About ½ mile NW. ½ W. of No. 129.	68	63		T.
131	do					Thatcher's Island Light N. by E. ½ E. 15 miles, 1 mile W. of No. 129.	68	62	38	T.
132	do					Thatcher's Island Light N. ½ E. 11½ miles, Eastern Point N. by W. ½ W. 10 miles, 3 miles NW. of No. 129.	70	63	38	T.
132a	do	42	26½	70	36	Thatcher's Island N. ½ E. 10 miles, Eastern Point N. by W. ½ W. 6 miles, Baker's Island W. ½ S. 9 miles.				
133	do	42	32	70	38½	Thatcher's Island NE. ½ N. 7½ miles, Eastern Point N. ½ W. 3½ miles, Baker's Island W. by N. ½ N. 6½ miles.	67	61		D.

DREDGINGS BY SPEEDWELL, 1878—Continued.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
							Air.	Surface.	Bottom.	
134	1878, July 23	° ' °	° ' °	Thatcher's Island NE. $\frac{1}{2}$ N. 6 $\frac{1}{2}$ miles, Eastern Point N. $\frac{1}{2}$ E. 2 $\frac{1}{2}$ miles, Baker's Island W. $\frac{1}{2}$ N. 5 $\frac{1}{2}$ miles, 1 mile NW. of No. 133	26	Pebbles and coarse sand	°	°	°	D.
135	July 26	42 32 $\frac{1}{2}$	70 38 $\frac{1}{2}$	Eastern Point N. by W. $\frac{1}{2}$ W. 2 miles, West Light Thatcher's Island NE. $\frac{1}{2}$ N. 5 $\frac{1}{2}$ miles 2 miles N. of No. 133.	25	Stony and gravelly	68	61	40 $\frac{1}{2}$	D.
135 ^a	do	.....	.....	About same as No. 135.	*25	.....	70	55 $\frac{1}{2}$	40	D. and T.
136	do	.....	.....	Short distance E. of No. 135 (southwesterly on original chart)	*26	Sand and stones	72	.....	38 $\frac{1}{2}$	D.
137	July 29	42 32 $\frac{1}{2}$	70 23 $\frac{1}{2}$	Eastern Point WNW. $\frac{1}{2}$ W. 10 $\frac{1}{2}$ miles, Thatcher's Island NW. $\frac{1}{2}$ W. 13 $\frac{1}{2}$ miles.	53	Rocks, drifting into soft mud	70	65	.....	D.
138	do	42 33	70 23	Thatcher's Island NW. $\frac{1}{2}$ N. 9 miles, Baker's Island W. by N. 16 $\frac{1}{2}$ miles.	59	Muddy	.....	.....	.....	T.
139	do	.....	.....	Drifting SW. from No. 138	59	do	.....	.....	.....	T.
140	do	42 34	70 32	Eastern Point W. by N. $\frac{1}{2}$ N. 6 miles, Thatcher's Island N. by W. $\frac{1}{2}$ W. 4 $\frac{1}{2}$ miles.	38	do	67	52 $\frac{1}{2}$	40	D.
141	Aug. 1	.....	.....	Gloucester Harbor, Eastern Point Light ESE, Norman's Woe Rock SW. by S, Fresh Water Cove NW. by W. $\frac{1}{2}$ W.	8 $\frac{1}{2}$	Sandy	63	57 $\frac{1}{2}$	44 $\frac{1}{2}$	D.
142	do	.....	.....	About as last.	9	.....	.....	.....	50	T.
143	do	.....	.....	do	.....	.....	.....	.....	50	T.
144	do	.....	.....	do	.....	.....	.....	.....	51	D.
145	do	.....	.....	do	.....	.....	63 $\frac{1}{2}$	56 $\frac{1}{2}$	.....	D.
146	Aug. 1	.....	.....	Gloucester Harbor, between Round Rock and Ten Pound Island Ledge.	8	Sandy	.....	.....	.....	T.
147	Aug. 3	42 33	70 41 $\frac{1}{2}$	About same as No. 145	16	Gravel, stones, broken shells.	67 $\frac{1}{2}$	50 $\frac{1}{2}$	42 $\frac{1}{2}$	D.
148	do	.....	.....	Eastern Point Light NE. by E. $\frac{1}{2}$ N. 2 $\frac{1}{2}$ miles, Baker's Island W. 4 $\frac{1}{2}$ miles.	*16	Stony	66	61 $\frac{1}{2}$	42	D.
149	do	.....	.....	$\frac{1}{2}$ mile S. by W. from No. 147	19 $\frac{1}{2}$	Sand and gravel	66	61 $\frac{1}{2}$	42	D.
150	do	.....	.....	About 2 miles SSW. of No. 148, Eastern Point NW. $\frac{1}{2}$ N. 4 $\frac{1}{2}$ miles, Baker's Island WNW. $\frac{1}{2}$ N. 3 $\frac{1}{2}$ miles.	7 $\frac{1}{2}$	Sand and mud	70	61	51 $\frac{1}{2}$	T.
151	do	.....	.....	Gloucester Harbor, half a mile S. of Fresh Water Cove, between it and Eastern Point Light.	7-10	do	.....	.....	.....	T.
152	do	.....	.....	About the same ground	.....	.....	.....	.....	.....	T.
153	do	.....	.....	About the same ground, just off Fresh Water Cove.	.....	.....	.....	.....	.....	T.
153 ^a	Aug. 8	.....	.....	do	.....	.....	62	62	44 $\frac{1}{2}$	T.
154	Aug. 15	42 35	70 31	Eastern Point Light, SW. 2 miles, (on schr. Hattie) Thatcher's Island NW. $\frac{1}{2}$ N. 4 $\frac{1}{2}$ miles, Eastern Point W. $\frac{1}{2}$ N. 7 miles.	17	Pebbles, coarse sand	69 $\frac{1}{2}$	64 $\frac{1}{2}$	41 $\frac{1}{2}$	D.
155	do	42 35	70 30	$\frac{1}{2}$ mile ESE. of No. 154, Thatcher's Island NW. $\frac{1}{2}$ W. 5 miles, Eastern Point W. $\frac{1}{2}$ N. 8 miles.	45	Muddy	.....	.....	.....	D.
156	do	.....	.....	A little E. of No. 155	42	Sand and mud	70 $\frac{1}{2}$	65 $\frac{1}{2}$	41 $\frac{1}{2}$	T.
157	do	.....	.....	$\frac{1}{2}$ mile W. of last place.	40	Sand and rocks	73	.....	42 $\frac{1}{2}$	D.
158	do	.....	.....	$\frac{1}{2}$ mile W. of last place.	38	Mud and then rocks	.....	.....	.....	D.

No.	do	Aug. 16	42 36	70 27	Gloucester Harbor, just off Fresh Water Cove.	8	Sand	60½	44½	T. D.
159	Aug. 16	42 36	70 27	Eastern Point Light W. ½ N. 9 miles, Thatcher's Island Light, NW ¾ W. ¾ miles.	54	do	71½	60½	44½	T. D.
160	do	do	do	A little S. by W. of No. 160.	54	do	71½	60½	44½	T. D.
161	do	do	do	About a mile S. of No. 160.	*50	Mud	64	61	39½	T.
162	do	do	do	West Light on Thatcher's Island NW ¾ W. 6½ miles, Eastern Point Light W. ¾ N. 10 miles, a mile SE ¼ E. from No. 160.	73	Fine sand.	70½	65½	39½	T.
163	do	do	do	West Light Thatcher's Island WNW ¾ N. 7½ miles, Eastern Point Light W. ¾ N. 10½ miles, nearly 2 miles E. of No. 160.	75	do	71	65½	40	T.
164	do	do	do	Spiswich Bay, Straitsmouth Light, S. by E. 5 miles, Annisquam Light SW ¾ W. 5½ miles.	35	do	71	64½	41½	D.
165	Aug. 19	42 44½	70 38	About same as last.	21	Sand	71½	64½	41½	T.
166	do	do	do	About same as last, ¼ mile N.	21	Sand	71	64½	41½	T.
167	do	do	do	Straitsmouth Light SE by S ¼ miles, Annisquam Light SSW ¾ W. 3½ miles, 2 miles WSW. of No. 165.	19	do	71	64½	41½	T.
168	do	do	do	About ¾ mile W. of No. 168.	90	Fine sandy mud with some gravel.	67	65½	40½	T. D.
169	Aug. 24	42 33	69 59	Eastern Point Light W. by N. ¾ N. 30½ miles, Boone Island Light N. by W. ¾ W. 4½ miles.	*90	Similar, but more stony	67	65½	39	T.
170	do	do	do	A little S. of last.	115	Sandy mud and fine gravel	67	65½	39	T.
171	do	do	do	Eastern Point Light W. by N. ¾ N. 32½ miles, Boone Island Light NNW ¾ N. 4½ miles.	140	Muddy	68½	65½	39½	D.
172	do	do	do	"Drifting towards the N."	140	do	68½	65½	39	T.
173	Aug. 27	42 37	69 40½	Thatcher's Island Light (Western) W. ¾ N. 38 miles, Eastern Point Light W. ¾ N. 42 miles.	*140	do	66	65½	39	T.
174	do	do	do	About as last.	175	Mud	66	65½	39	T.
175	do	do	do	2 miles N. of last place.	68	do	68	65½	39½	T.
176	do	42 38½	69 41½	About as last.	67	Fine sand.	67	65½	47	T.
177	do	do	do	do	45	do	73½	64½	41½	T. D.
178	do	do	do	Gloucester Harbor, just off Fresh Water Cove.	7	do	73½	64½	41½	T. D.
179	Aug. 29	do	do	About same as last.	10	do	73½	64½	41½	T. D.
180	do	do	do	Eastern Point Light N. ¾ W. 7 (11) miles, Thatcher's Island Light N. by E. ¾ E. 14½ miles.	45	Mud	73½	64½	41½	T. D.
181	do	42 24	70 36	About a mile E. of No. 181.	45	Mud, gravel, and pebbles.	73½	64½	41½	T. D.
182	do	do	do	Eastern Point Light N. ¾ W. 4½ miles, Baker's Island Light SW by S ¾ S. 7 miles.	45	do	73½	64½	41½	T. D.
183	do	42 30½	70 38	A little to N.E. of No. 183.	45	Mud	73½	64½	41½	T. D.
184	do	do	do	Eastern Point Light W. by N. 33 miles, Boone Island Light NNW. 4½ miles, White Island Light NW ¾ N. 42 miles.	110	Muddy	68½	65½	42½	T. D.
185	Aug. 31	42 33	69 55	About same as No. 185.	*110	do	73½	65½	42½	T. D.
186	do	do	do	About same as last.	110	Soft brown mud	73½	65½	42½	T. D.
187	do	do	do	About 2 miles W. of No. 187.	85	Sandy mud and gravel	68½	65½	40	Tan.
188	do	42 38½	69 58½	About same as No. 188.	*100	Gravel and pebbles	68½	65½	40	A. g. D.
189	do	do	do	About same as last, drifting towards SE	*100	Muddy	68½	65½	40	A. g. D.
190	do	do	do	About same as last, drifting towards E.	*100	Soft brown mud	68½	65½	40	T.
191	do	do	do	Somewhat E. of last.	100-110	do	68½	65½	40	T.
192	do	do	do	Somewhat SSW. of last	*100-110	Mud, harder at end	68½	65½	40	T.
193	do	do	do	Somewhat E. of last	*110	Muddy, harder than last	68½	65½	40	T.
194	do	do	do	Somewhat E. of last	*110	Muddy, harder than last	68½	65½	40	T.

* Estimated.

DREDGINGS BY SPEEDWELL, 1878—Continued.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
							Air.	Surface.	Bottom.	
1878.										
195	Sept. 2	42 27	70 19	{ Eastern Point Light NW. $\frac{1}{2}$ W. 16 $\frac{1}{2}$ miles, Eastern Light } Thatcher's Island NW. by N. 15 $\frac{1}{2}$ miles.	33-29	Coarse sand	72 $\frac{1}{2}$	63 $\frac{1}{2}$	{ 45 $\frac{1}{2}$ } { 48 $\frac{1}{2}$ }	{ D. } { T. }
196	do			$\frac{1}{2}$ mile SSW. from No. 195	29	Stony, sponges and gravel			47 $\frac{1}{2}$	T.
197	do	42 26 $\frac{1}{2}$	70 23	Eastern Point Light NW. $\frac{1}{2}$ N. 15 miles, Eastern Light	23	Stony and spongy			54 $\frac{1}{2}$	T.
198	do			Thatcher's Island NNW. 14 $\frac{1}{2}$ miles, $\frac{3}{4}$ miles W. from						
199	do	42 31	70 20	No. 195.	50	Coarse sand and mud	72 $\frac{1}{2}$			
200	Sept. 9			Eastern Light Thatcher's Island NW. $\frac{1}{2}$ N. 13 $\frac{1}{2}$ miles	93	Muddy	71 $\frac{1}{2}$	64 $\frac{1}{2}$	39 $\frac{1}{2}$	T.
201	do			N. 13 $\frac{1}{2}$ miles.						
202	do			Gloucester Harbor, off Norman's Woe	10	Sandy and rocky	64 $\frac{1}{2}$	60	56 $\frac{1}{2}$	T.
203	Sept. 16	42 31	70 37	Gloucester Harbor, off Muscel Cove	8 $\frac{1}{2}$	Sandy mud	63 $\frac{1}{2}$	61	54	
204	do			Off Gloucester, Eastern Point Light N. by W. $\frac{3}{4}$ W. 4 $\frac{1}{2}$	42	Muddy with large stones	62 $\frac{1}{2}$	60 $\frac{1}{2}$	47 $\frac{1}{2}$	D.
205	do			miles, Baker's Island Light WNW. 8 miles, drifting to						
206	do			SW.						
207	do			$\frac{1}{2}$ mile SW. by W. from No. 203	40	Soft brown mud	63	60 $\frac{1}{2}$	48 $\frac{1}{2}$	D.
208	do	42 33	70 43	Same as No. 203.	42	Muddy	65			T.
209	do			Same as No. 203.	42	Soft brown mud	65			T.
210	Sept. 17	42 38	70 28 $\frac{1}{2}$	Off Gloucester, Baker's Island Light W. $\frac{1}{2}$ S. 3 $\frac{1}{2}$ miles,	19-23	Rocky	63 $\frac{1}{2}$	60		D.
211	do			Eastern Point Light ENE. $\frac{1}{2}$ N. 2 $\frac{1}{2}$ miles, Kettle						
212	do			N. by W. $\frac{1}{2}$ miles.						
213	do			$\frac{1}{2}$ mile N. by W. $\frac{1}{2}$ W. from No. 208, $\frac{1}{2}$ mile from Kettle	17	Rock, gravel, and mud	64	60 $\frac{1}{2}$	48 $\frac{1}{2}$	D.
214	do			Island.						
215	Sept. 18	42 31	70 32	Off Cape Ann, Salvages NW. 5 miles, Eastern Point W.	60	Soft dark-brown mud	66	60	43	D.
216	do			$\frac{1}{2}$ S. 9 miles.	60	do				
217	do			About $\frac{1}{2}$ mile E. of No. 210.	68	do	65 $\frac{1}{2}$	60 $\frac{1}{2}$	42 $\frac{1}{2}$	D.
218	do			About $\frac{1}{2}$ mile S. by E. $\frac{1}{2}$ E. of No. 210.	68	Soft dark-brown mud and				T.
219	do			About $\frac{1}{2}$ mile E. by S. $\frac{1}{2}$ S. of No. 212.		hard concretions.				
220	do			A little SW. of No. 213.	57	Fine mud and sand	65 $\frac{1}{2}$	62	50 $\frac{1}{2}$	D.
221	Sept. 18	42 31	70 32	Eastern Point Light NW. $\frac{1}{2}$ N. 7 $\frac{1}{2}$ miles, Thatcher's Island	35	pebbles.				
222	do			Light N. $\frac{1}{2}$ W. $\frac{1}{2}$ miles.						
223	do			$\frac{1}{2}$ mile NNE. $\frac{1}{2}$ E. from No. 215.	35	Sandy				T.
224	do	42 30	70 35	Eastern Point Light NNW. $\frac{1}{2}$ W. 5 $\frac{1}{2}$ miles, Thatcher's	45	Soft dark-brown mud				T.
225	do			Island Light N. by E. $\frac{1}{2}$ E. 7 $\frac{1}{2}$ miles, 2 $\frac{1}{2}$ miles westerly						
226	do			from No. 215.						
227	do			Same as No. 217.						
228	do				45	do				T.

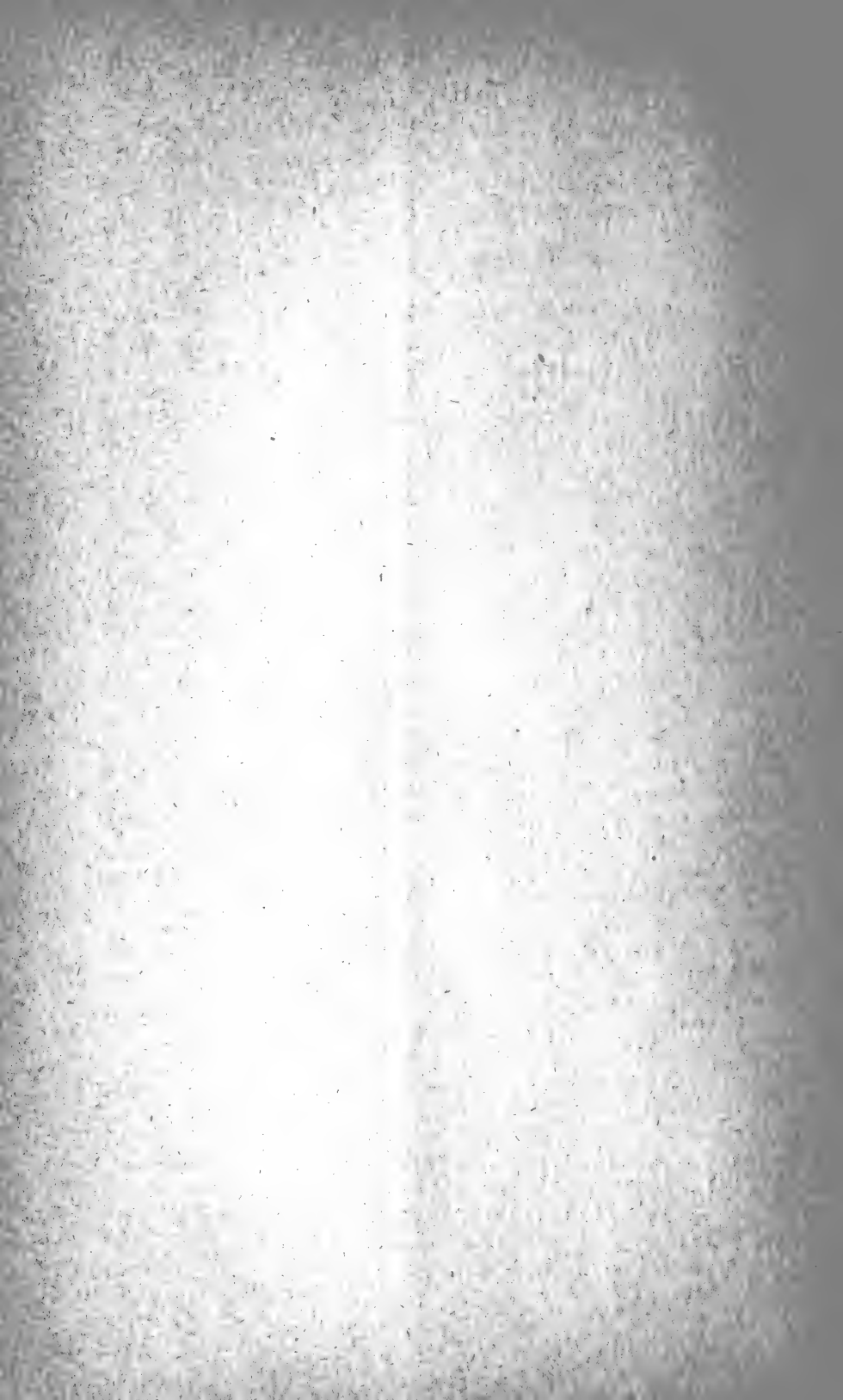
	1870.	°	'	°	'	Cape Cod Bay, Wood End Light N. 15° E., Indian Hill N. 79° W.	13	Blue mud and fine sand ..	°	°	D.	
239	July 21	41	51	70	14				70½	67	65½	D.
240	do	41	52½	70	15	Wood End Light N. 19° E., Rocky Point N. 74° W.	18		69½	67	64½	T.
241	do	41	57	70	12	Wood End Light N. 16° E., Billingsgate Light S. 55° E.	19	Blue mud and fine sand ..				T.
242	do	41	59	70	13	Race Point Light N. 9° W., Cape Cod Light N. 68° E.	21	Blue mud.	72	67	62½	D.
243	do	42	01	70	12	Race Point Light N. 25° W., Wood End Light N. 58° E.	20		69	66½	{ 60 }	T.
244	July 23	42	04½	70	15½	Race Point Light S. 50° E. (dredge) 1 mile, (trawl) 1½ miles..	25-30	Fine gray sand.....	70	58	{ 40 } { 45 }	D. and T.
245	do	{ 42 }	{ 08 }	{ 70 }	{ 17 }	{ Race Point Light S. 27° E. (dredge) ¾ mile, S. 7 W. (trawl) 4 miles.	28	do				D. and T.

DREDGINGS BY SPEEDWELL, 1879—Continued.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
							Air.	Surface.	Bottom.	
246	1879.	°	°				°	°	°	
247	July 25	42 06	70 14½	Race Point Light S. 11° E. 2½ miles, "Spider Ground".	28	Fine gray sand	66	63	°	D.
248	do	42 07	70 15½	Race Point Light S. 20° E. 3½ miles	34	do	66	63	°	D.
249	do	42 07	70 15½	Race Point Light S. 1° W. 3½ miles	32	do	66½	63½	°	D.
250	do	42 08½	70 13	Race Point Light S. 13° W. 4½ miles	30	Coarse sand	65	62½	°	T.
251	do	42 09	70 13	Race Point Light S. 9° W. 5½ miles	30	do	66½	63½	°	T.
252	do	42 10	70 10½	Race Point Light S. 23° W. 6½ miles	24½	Coarse sand and gravel	66½	60½	°	D.
253	do	42 09	70 09½	Race Point Light S. 34° W. 6½ miles	27	Fine gray sand and gravel	66½	62½	°	T.
254	July 28	41 57	70 17½	Cape Cod Bay, "Fishing Ledge," Wood End Light N. 50° E. 7 miles.	17	Rocky	72	65	°	T.
255	do			do	21	Sandy	75	65	°	D.
256	do			do	18	Rocky	76	66	°	D.
257	do			do	16	do	78	68	°	D.
258	do	41 55	70 20	Cape Cod Bay, Wood End Light N. E. ½ E. 3½ miles	20	Soft mud	72	64	°	T.
259	do	41 54½	70 23½	Cape Cod Bay, Wood End Light E. N. E. 10½ miles	24	Blue mud	71	64	°	T.
260	do	41 58½	70 19	Cape Cod Bay, Wood End Light E. N. E. 7½ miles	25	Green mud	74	65	°	T.
261	do	42 00	70 15	Cape Cod Bay, Wood End Light E. N. E. 3½ miles	26	Mud	74	65	°	T.
262	July 29	42 11	69 57	Off Cape Cod, Race Point Light S. 65° W. 14 miles	80	Blue mud	71	65½	°	D.
263	do			do	83	do	71	65½	°	D.
264	do	42 10	69 56½	Off Cape Cod, Race Point Light S. 65° W. 15 miles	80	do	71	65½	°	T.
265	do	42 09½	69 57	Off Cape Cod, Race Point Light S. 30° W. 8 miles	120	Gravel	71½	66½	°	T.
266	do	42 12½	69 50	Off Cape Cod, Cape Cod Light S. 42° W. 13 miles	72	Blue mud	70½	68½	°	T.
267	July 31	42 13	69 40	Off Cape Cod, Race Point Light S. 81½° W. 26 miles	135	do	71	67½	41	T.
268	do	42 12	69 40	Off Cape Cod, Race Point Light S. 84½° W. 26 miles	129	do	71	67½	41	T.
269	do	42 08	69 53	Off Cape Cod, Cape Cod Light S. 67½° W. 9 miles	53	Gravel	70½	64½	39½	T.
270	do	42 06	69 55½	Off Cape Cod, Cape Cod Light S. 60½° W. 7 miles	42	Blue sand and gravel	71	64½	39	T.
271	Aug. 1	42 06½	70 18	Off Cape Cod, Race Point Light S. 12° W. 2½ miles	34	Fine yellow sand	70½	66½	38½	T.
272	do	42 07	70 19	Off Cape Cod, Race Point Light S. 12° W. 3 miles	34	Yellow sand	70	66½	38	T.
273	do	42 07½	70 09½	Off Cape Cod, Race Point Light S. 40° W. 5½ miles	25	Coarse yellow sand and gravel	69	67	38½	D.
274	do	42 09½	70 05	Off Cape Cod, Cape Cod Light S. 11° E. 7 miles	30	Coarse yellow sand and broken shells.	73½	68½	39	D.
275	do			do	29½	Green mud	72	63½	39½	T.
276	do	42 08½	70 00	Off Cape Cod, Cape Cod Light S. 20° W. 6½ miles	47	Blue mud	71	66	37½	T.
277	do	42 02	70 13	Cape Cod Bay, Wood End Light S. 70° E. 3 miles	28	Sand and shells	74	74½	42	T.
278	Aug. 4			Provincetown Harbor, Long Point Light N. 75° E. 4 miles	9	Sandy	70	69	43	D.
279	do	42 09½	70 15	On Stellwagen's Bank, Race Point Light S. 64 miles	13-13½	Sand	74	63	44½	D.
280	do	42 09½	70 16½	On Stellwagen's Bank, Race Point Light S. 17° E. 6½ miles	12-13½	Yellow sand and gravel	76	63	44	D.
281	do	42 12	70 16½	On Stellwagen's Bank, Race Point Light S. 12° E. 6½ miles	14	Fine yellow sand and broken shells.	76	62.3	44	D.

DREDGINGS BY SPEEDWELL, 1879—Continued.

Serial number.	Date.	Latitude.	Longitude.	Locality.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
							Air.	Surface.	Bottom.	
324	1879, Sept. 1	42 13 $\frac{1}{2}$	70 03	Off Cape Cod, Cape Cod Light S. 2° W. 11 miles.....	45	Coarse sand, black specks, broken shells.	67	61	0	T.
325	...do....	42 14 $\frac{1}{2}$	70 00 $\frac{1}{2}$	Off Cape Cod, Cape Cod Light S. 8° W. 13 miles.....	83	Green mud.....	67	61	40 $\frac{1}{2}$	T.
326	...do....	42 14 $\frac{1}{2}$	70 02	Off Cape Cod, Cape Cod Light S. 4° W. 12 $\frac{1}{2}$ miles.....	75	.....do.....	70	56 $\frac{1}{2}$	40 $\frac{1}{2}$	A.G. T.
327	Sept. 6	42 11	70 12 $\frac{1}{2}$	S. end Stellwagen's Bank, Race Point Light S. 11° W. 7 $\frac{1}{2}$ miles.	17	Coarse sand, black specks.	64 $\frac{1}{2}$	60	44 $\frac{1}{2}$	D.
328	...do....	42 10	70 13	Off S. end Stellwagen's Bank, Race Point Light S. 11° W. 6 $\frac{1}{2}$ miles.	23	.....do.....	72	60 $\frac{1}{2}$	42	O. T.
329	...do....	42 03	70 12	Off S. end Stellwagen's Bank, Race Point Light S. 17° W. 5 $\frac{1}{2}$ miles.	26	Fine brown sand, pebbles.	67 $\frac{1}{2}$	60	42	R. D.
330	...do....	42 00 $\frac{1}{2}$	70 13	Off S. end Stellwagen's Bank, Race Point Light S. 8° W. 6 miles.	26	.....do.....	63	60	42	T.
331	...do....	42 03 $\frac{1}{2}$	70 14	Off S. end Stellwagen's Bank, Race Point Light S. 2° W. 5 $\frac{1}{2}$ miles.	28	Fine brown sand, black specks.	67	60 $\frac{1}{2}$	41 $\frac{1}{2}$	T.
332	...do....	42 09	70 15	Off S. end Stellwagen's Bank, Race Point Light S. 0° E. 5 $\frac{1}{2}$ miles.	28	Fine brown sand, shells.....	70	61	42	T.
333	...do....	42 02 $\frac{1}{2}$	70 16 $\frac{1}{2}$	Off S. end Stellwagen's Bank, Race Point Light S. 18° E. 5 $\frac{1}{2}$ miles.	27	.....do.....	71	61	42 $\frac{1}{2}$	R. D.
334	...do....	42 02	70 18	Off S. end Stellwagen's Bank, Race Point Light S. 28° E. 5 $\frac{1}{2}$ miles.	27	Fine yellow sand.....	74	61 $\frac{1}{2}$	42	A.G. T.
335	Sept. 9	41 53 $\frac{1}{2}$	70 34 $\frac{1}{2}$	Off Plymouth, Gurnet Point Light N. 30° W. 13 miles.....	7	Green mud, sand, with dead eel-grass.	62	61 $\frac{1}{2}$	55	D.
336	...do....	41 58	70 33 $\frac{1}{2}$	Off Plymouth, Gurnet Point Light N. 40° W. 23 miles.....	11 $\frac{1}{2}$	Brown sand, specks, eel-grass.	69	61 $\frac{1}{2}$	50	T.
337	...do....	41 57 $\frac{1}{2}$	70 30 $\frac{1}{2}$	Off Plymouth, Gurnet Point Light N. 58° W. 43 miles.....	16	Green mud and sand.....	70	62	47 $\frac{1}{2}$	D.
338	...do....	41 57 $\frac{1}{2}$	70 28	Off Plymouth, Gurnet Point Light N. 66° W. 63 miles.....	18	Sand, blue mud.....	71	62 $\frac{1}{2}$	47 $\frac{1}{2}$	T.
339	...do....	41 54	70 28	Cape Cod Bay, Manomet Point N. 67° W. 34 miles, 34 miles S. of No. 338.	15 $\frac{1}{2}$	Mud and sand.....	75	63	47 $\frac{1}{2}$	T.
340	...do....	41 51	70 27 $\frac{1}{2}$	Cape Cod Bay, Manomet Point N. 28° W. 6 miles.....	14	Brown sand and mud.....	68 $\frac{1}{2}$	63	40 $\frac{1}{2}$	D.
341	...do....	41 51 $\frac{1}{2}$	70 21 $\frac{1}{2}$	Cape Cod Bay, Manomet Point N. 68° W. 9 miles.....	15 $\frac{1}{2}$	Green mud, sand.....	68 $\frac{1}{2}$	63 $\frac{1}{2}$	48	T.
342	Sept. 10	42 16	69 56	Off Cape Cod, Cape Cod Light S. 2° W. 14 miles.....	94	Brown mud.....	63 $\frac{1}{2}$	58 $\frac{1}{2}$	41 $\frac{1}{2}$	T.
343	...do....	42 17	69 51	Off Cape Cod, Cape Cod Light S. 33° W. 17 $\frac{1}{2}$ miles.....	116	.....do.....	63	57	41 $\frac{1}{2}$	T.
344	...do....	42 19	69 47 $\frac{1}{2}$	Off Cape Cod, Cape Cod Light S. 35° W. 15 miles (20 miles on original chart).	130	.....do.....	64	57 $\frac{1}{2}$	41 $\frac{1}{2}$	T.
345	Sept. 13	42 19 $\frac{1}{2}$	70 45	Off Boston Harbor, Minot's Ledge Light S. 31 miles.....	16	Speckled sand and shells.....	60	61	46 $\frac{1}{2}$	D.
346	...do....	42 13 $\frac{1}{2}$	70 38	Massachusetts Bay, Minot's Ledge Light W. 54 miles.....	22	Pebbles and broken shells.....	66 $\frac{1}{2}$	61 $\frac{1}{2}$	44 $\frac{1}{2}$	T.
347	...do....	42 12	70 33 $\frac{1}{2}$	Massachusetts Bay, Minot's Ledge Light N. 66° W. 9 miles.....	20	Speckled sand.....	65	61 $\frac{1}{2}$	46 $\frac{1}{2}$	T.
348	...do....	42 03 $\frac{1}{2}$	70 32 $\frac{1}{2}$	Massachusetts Bay, Standish Monument (near Duxbury) N. 3° W. 10 miles.	16 $\frac{1}{2}$	Gravel and sand.....	66	62 $\frac{1}{2}$	46 $\frac{1}{2}$	D.



DREDGING STATIONS OF THE U. S. FISH COMMISSION
STEAMER FISH HAWK, LIEUT. Z. L. TANNER COMMAND-
ING, FOR 1880, 1881, AND 1882, WITH TEMPERATURE AND
OTHER OBSERVATIONS.

[Arranged for publication by Richard Rathbun.]

In the summer of 1880, the headquarters of the United States Fish Commission were established at Newport, R. I., and the steamer Fish Hawk, then newly constructed, made its dredging and trawling trips from there, whenever the weather permitted. The field of explorations for the summer included Narragansett Bay, Sakonnet River, and the regions to the northward, eastward, and southward of Block Island. In September and the first part of October, three trips were made by the Fish Hawk to the inner edge of the Gulf Stream slope, between latitudes $40^{\circ} 05' 42''$ N. and $39^{\circ} 46'$ N., and longitudes $70^{\circ} 22' 06''$ W. and $71^{\circ} 10'$ W., in depths of 64 to 487 fathoms, resulting in the discovery of a new and exceedingly rich fauna, both as regards fish and marine invertebrates. On her passage to Washington in November, the Fish Hawk also trawled off the mouth of Chesapeake Bay, in depths of 18 to 300 fathoms.

During the summers of 1881 and 1882, the headquarters of the Commission were at Wood's Holl, Mass. As the shallow waters of this region had been quite fully explored by the Commission in 1871 and 1875, very little time was expended in work near land; but advantage was taken of all pleasant weather to still further investigate the rich faunal region of the Gulf Stream slope, discovered the previous year. Seven trips were made to this region, in 1881, between latitudes $39^{\circ} 40'$ N. and $40^{\circ} 22'$ N., and longitudes $69^{\circ} 15'$ W. and $71^{\circ} 32'$ W., in depths of 43 to 782 fathoms. A line of dredgings and trawlings, at intervals of about four miles, was made from off Noman's Land to the Gulf Stream slope, in order to connect the inshore with the offshore stations; and a few trips were also made in Vineyard Sound, Buzzard's Bay, and off Chatham, Cape Cod, on, and in the vicinity of, Crab Ledge. Cod trawl-lines were set on most of the outside trips, for the purpose of catching fish that would not enter the beam-trawl.

In 1882, five deep-water trips, were made to the same region, extending the area of dredgings considerably beyond its former eastern and western limits. A few hauls of the dredge and beam-trawl were taken in Vineyard Sound, and one trip was made to the one-hundred fathom line, off the eastern side of Cape Cod. The most eastern haul on the Gulf Stream slope for 1882, was in latitude $40^{\circ} 08'$ N. and longitude $68^{\circ} 45'$ W.; and the most western in latitude $39^{\circ} 31'$ N. and longitude $72^{\circ} 03'$ W.; the deepest haul was in 787 fathoms. Cod-trawls were set on two of the trips only.

The temperatures of the air were taken, in part, with a Jas. Green, in part with a Signal Service; thermometer; the temperatures of the bottom and surface waters were obtained by means of Negretti and Zambra deep-sea thermometers. The bearings are all magnetic. As the bearings and latitudes and longitudes indicate only the points at which the dredge or trawl was lowered upon the bottom, the direction of the drift of the vessel and the distance gone over in dredging and trawling have been given in most cases, to show the extent of the hauls. The figures in the column of "Drift" indicate the distance of the drift in miles. The abbreviations in the column of "Apparatus used" have the following significations: D., dredge; R. D., rake-dredge; O. D., oyster-dredge; T., trawl; O. T., otter-trawl; B. T., Blake-trawl; Tan., tangles; C. T., cod-trawl.

The New York fishing schooner, Josie Reeves, Capt. F. M. Redmond, employed by the Fish Commission to look for the tile fish (*Lopholatilus chamaeleonticeps*) in the neighborhood of the one-hundred fathom line, south of Martha's Vineyard, made five stations in that region, which for convenience sake have been given numbers in the regular series from 1145 to 1149, inclusive. She used cod trawl-lines and lobster-pots.

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.		Apparatus used.
									Air.	Surf. Bot- tom.	
Narragansett Bay:											
770	1880. Aug. 6	10 a. m.	0 1 "	0 1 "	Beaver Tail Light, SE by S, $\frac{1}{2}$ mile.	.....	84	Sand and shells	68.0	66.5	D.
771	Aug. 6	10.30	.....	.....	Beaver Tail Light, SE $\frac{1}{2}$ S, $\frac{1}{2}$ mile.	.....	84	do	68.0	66.5	D.
772	Aug. 6	11.35	.....	.....	Beaver Tail Light, S by E, $\frac{1}{2}$ miles.	.....	8	do	72.0	69.5	T.
773	Aug. 6	11.45	.....	.....	Beaver Tail Light, S by E, $\frac{1}{2}$ miles.	.....	8	do	72.0	69.5	T.
774	Aug. 6	1 p. m.	.....	.....	North end Dutch Island, south, $\frac{1}{2}$ mile.	.....	10 $\frac{1}{2}$	Sand, mud, shells	72.0	72.0	D.
775	Aug. 6	1.35	.....	.....	North end Dutch Island, south, 1 mile.	.....	12	Gravel, sand, mud	72.0	69.0	T.
776	Aug. 7	9.45 a. m.	.....	.....	Fort Dumpling, NW by W, $\frac{1}{2}$ W, $\frac{1}{2}$ mile.	.....	27 $\frac{1}{2}$	Sand, shells	72.0	67.5	D.
777	Aug. 7	10.20	.....	.....	Fort Dumpling, NW by W, $\frac{1}{2}$ W, $\frac{1}{2}$ mile.	.....	27 $\frac{1}{2}$	Sand, shells, gravel	72.0	67.5	T.
778	Aug. 7	10.40	.....	.....	Fort Dumpling, N $\frac{1}{2}$ E, 800 yards.	.....	26 $\frac{1}{2}$	Gravel, sand, broken shells	76.0	70.0	T.
779	Aug. 7	11.05	.....	.....	Fort Dumpling, NE, $\frac{1}{2}$ miles.	.....	22 $\frac{1}{2}$	Gravel, sand, shells	73.0	68.0	D.
780	Aug. 7	11.30	.....	.....	Beaver Tail Light, west, 1 mile.	.....	16	do	79.0	69.0	T.
781	Aug. 7	12 m.	.....	.....	Beaver Tail Light, W, NW, $\frac{1}{2}$ mile.	.....	16	Sand	75.0	69.0	T.
782	Aug. 12	9.30 a. m.	.....	.....	Beaver Tail Light, W $\frac{1}{2}$ N, $\frac{1}{2}$ miles.	.....	16	Sand, gravel, broken shells	68.0	70.0	D.
783	Aug. 12	10.15	.....	.....	Off Newport, R. I.	.....	17 $\frac{1}{2}$	do	70.0	70.0	T.
784	Aug. 12	10.50	.....	.....	Brenton's Reef Light-ship, N. by E, 1 mile.	.....	20	Fine sand and broken shells	71.5	71.0	D.
785	Aug. 12	11.30	.....	.....	Point Judith, W $\frac{1}{2}$ S, 4 $\frac{1}{2}$ miles	.....	19 $\frac{1}{2}$	Sand	72.0	71.0	T.
786	Aug. 12	2.35 p. m.	.....	.....	Brenton's Reef Light-ship, N. $\frac{1}{2}$ W, 2 $\frac{1}{2}$ miles.	.....	19	Mud and fine sand	74.0	71.0	D.
787	Aug. 12	3	.....	.....	Brenton's Reef Light-ship, NW $\frac{1}{2}$ W, 4 $\frac{1}{2}$ miles.	.....	19	do	74.0	71.0	T.
788	Aug. 13	10.40 a. m.	.....	.....	Brenton's Reef Light-ship, N. NW, $\frac{1}{2}$ W, 4 miles.	.....	18	Fine sandy mud	70.0	71.0	D.
789	Aug. 13	11.05	.....	.....	Brenton's Reef Light-ship, N. NW, $\frac{1}{2}$ W, 6 miles.	.....	17 $\frac{1}{2}$	Sand and scallops	70.0	71.0	O. T.
790	Aug. 13	11.55	.....	.....	Brenton's Reef Light-ship, N. NW, $\frac{1}{2}$ W, 5 $\frac{1}{2}$ miles.	.....	16	Fine sand	70.0	71.0	T.
791	Aug. 13	1.10 p. m.	.....	.....	Point Judith, W. NW, 8 $\frac{1}{2}$ miles.	.....	20	Fine sandy mud	72.0	71.0	D.
792	Aug. 13	1.50	.....	.....	Point Judith, W. NW, 12 miles.	.....	18	do	72.0	71.0	D.
793	Aug. 14	9 a. m.	.....	.....	Point Judith, W. NW, 1 W, 6 miles.	.....	19	Sand and broken shells	71.0	69.0	D.
794	Aug. 14	9.45	.....	.....	Point Judith, W. NW, $\frac{1}{2}$ W, 5 miles.	.....	19	Sand	70.0	69.0	T.
795	Aug. 14	10.25	.....	.....	Point Judith, W. NW, $\frac{1}{2}$ W, 4 miles.	.....	19	Fine sandy mud	71.0	69.0	D.
796	Aug. 14	11.00	.....	.....	Point Judith, W. NW, 3 $\frac{1}{2}$ miles.	.....	19	do	70.0	69.0	T.
797	Aug. 14	11.40	.....	.....	Point Judith, NW by W, $\frac{1}{2}$ W, 24 miles.	.....	16 $\frac{1}{2}$	Soft mud and coarse sand	70.0	68.5	D.
798	Aug. 14	12.10 p. m.	.....	.....	Point Judith, NW by W, $\frac{1}{2}$ W, 14 miles.	.....	12 $\frac{1}{2}$	Sand, gravel, few large stones	71.0	66.0	D.
799	Aug. 14	12.30	.....	.....	Point Judith, W $\frac{1}{2}$ N, 13 miles.	.....	13	do	70.0	67.0	D.
800	Aug. 16	11.35 a. m.	.....	.....	Narragansett Bay: Poplar Point Lights, N. NW, $\frac{1}{2}$ W, 2 $\frac{1}{2}$ miles.	.....	4	Sand	63.0	70.0	T.

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.		Apparatus used.
									Air.	Surf. bot.	
	1880.		° ' "	° ' "	Narragansett Bay:						
801	Aug. 16	12.20 p. m.			Poplar Point Lights, W. by N. $2\frac{1}{2}$ miles.		4 $\frac{1}{2}$	Mud	65.0	71.0	T.
802	Aug. 16	2.15			Halfway Rock, W. $\frac{3}{4}$ of a mile.		12 $\frac{1}{2}$	do	68.0	70.5	T.
803	Aug. 16	3.25			Halfway Rock, N. by E. $\frac{1}{4}$ E., $2\frac{3}{4}$ miles.		20	Fine sandy mud	67.0	69.0	D.
					Off Newport, R. I. (Brown's Ledge):						
804	Aug. 17	11.15 a. m.			Cuttyhunk Light, N.E. by E., $8\frac{1}{2}$ miles.	NW. by W., $\frac{1}{4}$ mile.	11 $\frac{1}{2}$	Rocks and sand	68.0	66.0	D.
805	Aug. 17				Close to No. 804	W.SW., $\frac{3}{4}$ mile.	14	Fine gravel	69.0	67.0	D.
806	Aug. 17	12.00 m.			Cuttyhunk Light, E.N.E., $7\frac{3}{4}$ miles.	SW. by S., $\frac{1}{4}$ mile.	12 $\frac{1}{2}$	Fine gravel and stones	70.0	67.0	Tan.
807	Aug. 17	12.50 p. m.			Cuttyhunk Light, N.E. by E., $\frac{3}{4}$ E., $7\frac{1}{2}$ miles.	SW. by S., $\frac{1}{4}$ S., $\frac{1}{4}$ mile.	13	do	70.0	67.0	D.
808	Aug. 17	1.20			Cuttyhunk Light, N.E. by E., $\frac{1}{4}$ E., $8\frac{1}{2}$ miles.	W. $\frac{1}{4}$ S., $\frac{1}{4}$ mile.	21 $\frac{1}{2}$	Fine sand	70.0	67.0	D.
809	Aug. 17	1.55			Cuttyhunk Light, N.E. by E., $12\frac{1}{2}$ miles.	W. $\frac{1}{4}$ S., $\frac{1}{4}$ mile.	21	Fine sand and gravel	70.0	67.0	T.
810	Aug. 17	2.15			Cuttyhunk Light, N.E. by E., $12\frac{1}{2}$ miles.	SW., $\frac{1}{4}$ mile.	19 $\frac{1}{2}$	Fine sandy mud	69.0	67.0	D.
811	Aug. 17	2.20			Off Newport, R. I.: W. of Brown's Ledge:	NW., $\frac{1}{4}$ mile.	28 $\frac{1}{2}$	Sand	70.0	66.0	D.
812	Aug. 18	11.30 a. m.			Cuttyhunk Light, N.N.W., $\frac{1}{4}$ W., 20 miles.	SE., $\frac{1}{4}$ mile.	28 $\frac{1}{2}$	do	70.0	67.0	T.
813	Aug. 18	11.55			Block Island Light, N.N.W., $\frac{1}{4}$ W., 20 miles.	SW., $\frac{1}{4}$ mile.	27 $\frac{1}{2}$	Sand and gravel	72.0	72.0	T.
814	Aug. 18	1.00 p. m.			Block Island Light, N.N.W., $\frac{3}{4}$ W., 18 miles.	SW., $\frac{1}{4}$ mile.	29	Fine sand.	72.0	72.0	R.D.
815	Aug. 18	2.15			Block Island Light, N.W. by N., 17 miles.	SE., $\frac{1}{4}$ mile.	8 $\frac{1}{2}$	Sand and broken shells	71.0	69.0	D.
816	Aug. 23	10.25 a. m.			Narragansett Bay:	SE., $\frac{1}{4}$ mile.	10	do	72.0	63.0	D.
817	Aug. 23	11.00			Brenton's Reef Light-ship, E. $\frac{1}{4}$ S., $2\frac{1}{2}$ miles.	SE., $\frac{1}{4}$ mile.	9 $\frac{1}{2}$	do	72.0	63.0	D.
818	Aug. 23	11.20			Brenton's Reef Light-ship, E. $\frac{1}{4}$ N., 3 miles.	SE., $\frac{1}{4}$ mile.	6	Mud and broken shells	74.0	73.0	T.
819	Aug. 23	1.00 p. m.			South end Hope Island, SE. by E. $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	W. by S., $\frac{1}{4}$ mile.	5 $\frac{1}{2}$	do	76.0	72.0	T.
820	Aug. 23	1.40			South end Hope Island, N.N.E., $\frac{1}{4}$ mile.	SW., $\frac{1}{4}$ mile.	5	do	78.0	70.0	T.
821	Aug. 23	2.15			South end Hope Island, N. by E., $\frac{3}{4}$ mile.	W., $\frac{1}{4}$ mile.	4 $\frac{1}{2}$	do	78.0	71.0	T.
822	Aug. 23	3.00			South end Hope Island, N.E., $\frac{3}{4}$ mile.	NW., $\frac{1}{4}$ mile.	15 $\frac{1}{2}$	Sand.	74.0	65.0	D.
823	Aug. 24	12.35			North of Block Island:	NW., $\frac{1}{4}$ mile.	13	do	74.0	65.0	T.
824	Aug. 24	12.50			North Light of Block Island, W. $\frac{1}{4}$ S., $1\frac{1}{2}$ miles.	NW., $\frac{1}{4}$ mile.					
					North Light of Block Island, SW. $\frac{1}{4}$ W., 1 mile.						

825	Aug. 24	1. 30	North Light of Block Island, W. SW. $\frac{1}{2}$ W. $\frac{1}{2}$ miles.	NW, $\frac{1}{2}$ mile....	13	do	73.0	67.0	60.0	O. T.
826	Aug. 24	2. 40	North Light of Block Island, W. NW. $\frac{1}{2}$ W. $\frac{1}{2}$ miles.	S. SW, $\frac{1}{2}$ mile....	22	do	72.0	67.0	57.0	D.
827	Aug. 24	3. 05	North Light of Block Island, W. NW. $\frac{1}{2}$ W. $\frac{1}{2}$ miles.	E. NE, $\frac{1}{2}$ mile....	20 $\frac{1}{2}$	do	71.0	67.0	57.0	B. T.
828	Aug. 25	12. 40	North Light of Block Island, SW. by W. $\frac{3}{4}$ W. $\frac{1}{2}$ miles.	E. NE, $\frac{1}{2}$ mile....	15	do	70.0	66.0	60.0	D.
829	Aug. 27	10. 45 a. m.	Month of Sakonnet River, R. I.: Cormorant Rock, NW. by N, $\frac{1}{2}$ mile.	S. by E., $\frac{1}{2}$ mile....	9	Gravel and stones....	63.0	66.0	65.0	D.
830	Aug. 27	11. 15	West Island, SE. by E. $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	NE, $\frac{1}{2}$ E., $\frac{1}{2}$ mile....	10 $\frac{1}{2}$	Sand and gravel....	64.0	66.0	65.0	D.
831	Aug. 27	12. 30 p. m.	Sakonnet River, R. I.: North end of Gould Island, SW. $\frac{1}{2}$ W., 350 yards.	S., $\frac{1}{2}$ mile....	6	Dark, soft fetid mud	68.0	71.0	71.0	D.
832	Aug. 27	12. 45	North end of Gould Island W. 150 yards.	S., $\frac{1}{2}$ mile....	9	do	70.0	71.0	71.0	D.
833	Aug. 27	1. 00	South end of Gould Island, W. 100 yards.	N., $\frac{1}{2}$ mile....	6 $\frac{1}{2}$	do	70.0	71.0	71.0	D.
834	Aug. 27	1. 30	McCurry's Point, W. SW., $\frac{1}{2}$ mile.	N. by E., $\frac{1}{2}$ mile....	11	do	63.0	73.0	71.0	R. D.
835	Aug. 27	1. 50	McCurry's Point, N. $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	N., $\frac{1}{2}$ mile....	3 $\frac{1}{2}$	Soft mud and broken shells.	63.0	73.0	71.0	R. D.
836	Aug. 27	2. 25	Black Point, W. $\frac{1}{2}$ N., $\frac{1}{2}$ mile.	S. SW., $\frac{1}{2}$ mile....	5	Sand	66.0	71.0	71.0	R. D.
837	Aug. 27	2. 45	Black Point, NW. by W. $\frac{3}{4}$ W., $\frac{1}{2}$ mile.	S. by E., $\frac{1}{2}$ mile....	5	do	69.0	71.0	71.0	R. D.
838	Aug. 27	3. 15	Wood's Castle, W. by N., 1 mile.	S. by E., $\frac{1}{2}$ mile....	5 $\frac{1}{2}$	do	66.0	70.0	68.0	T.
839	Aug. 31	9. 50 a. m.	Narragansett Bay: Dumplings, NW. $\frac{1}{2}$ N., 300 yards.	SW., $\frac{1}{2}$ mile....	27 $\frac{1}{2}$	Gravel and sand	67.0	67.0	61.0	D.
840	Aug. 31	10. 05	Dumplings, N. by W. $\frac{3}{4}$ W., 100 yards.	SW., $\frac{1}{2}$ mile....	20 $\frac{1}{2}$	do	67.0	67.0	61.0	D.
841	Aug. 31	10. 45	Goat Island Light, NE. by E. $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	S., $\frac{1}{2}$ mile....	21	Mud, sand, large stones	63.0	67.0	60.0	D.
842	Aug. 31	11. 00	Goat Island Light, E. NE, $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	N., $\frac{1}{2}$ mile....	8	Sand....	69.0	67.0	63.0	T.
843	Aug. 31	12. 00 m.	North end Dyer's Island, NE. $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	N., $\frac{1}{2}$ mile....	14 $\frac{1}{2}$	do	69.0	69.0	67.0	T.
844	Aug. 31	12. 30 p. m.	North end Dyer's Island, SE. $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	W. SW., $\frac{1}{2}$ mile....	11 $\frac{1}{2}$	do	70.0	69.0	63.0	T.
845	Aug. 31	1. 00	Prudence Light, N. $\frac{1}{2}$ W., $\frac{3}{4}$ mile.	E. NE., $\frac{1}{2}$ mile....	14 $\frac{1}{2}$	Gravel....	70.0	69.0	64.0	T.
846	Aug. 31	1. 35	Prudence Light, N. by E. $\frac{3}{4}$ E., $\frac{1}{2}$ miles.	E. NE., $\frac{1}{2}$ mile....	14 $\frac{1}{2}$	Sandy mud and broken shells	70.0	63.0	63.0	R. D.
847	Aug. 31	2. 15	Half-Way Rock, E. $\frac{1}{2}$ W., 1 mile.	N. NE., $\frac{1}{2}$ mile....	12 $\frac{1}{2}$	Mud	70.0	68.0	62.0	T.
848	Aug. 31	3. 00	Bishop's Rocks, E., $\frac{1}{2}$ mile.	N., $\frac{1}{2}$ mile....	15 $\frac{1}{2}$	Mud	69.0	68.0	62.0	T.
849	Sept. 1	9. 20 a. m.	Fort Dumping, W. NW. $\frac{1}{2}$ W., $\frac{1}{2}$ mile.	SW., $\frac{1}{2}$ mile....	20	Sand, gravel, stones	67.0	67.0	63.0	R. D.
850	Sept. 1	9. 40	Fort Dumping, E. NE, $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	S. SW., $\frac{1}{2}$ mile....	14 $\frac{1}{2}$	Sand and shells	67.0	67.0	65.0	R. D.
851	Sept. 1	10. 00	Beaver Tail Light, SW. $\frac{1}{2}$ W., $\frac{1}{2}$ miles.	S., $\frac{1}{2}$ mile....	12 $\frac{1}{2}$	Sand and gravel	66.0	67.0	66.0	R. D.
852	Sept. 1	10. 35	Beaver Tail Light, SW. $\frac{1}{2}$ W., $\frac{1}{2}$ miles.	S., $\frac{1}{2}$ mile....	21	Sand	67.0	67.0	66.0	T.
853	Sept. 1	10. 50	Beaver Tail Light, SW. by S., 2 miles.	S., $\frac{1}{2}$ mile....	21	Sand	67.0	67.0	66.0	T.
854	Sept. 1	11. 10	Beaver Tail Light, SW. $\frac{1}{2}$ W., $\frac{1}{2}$ miles.	S., $\frac{1}{2}$ mile....	41	Sand	68.0	67.0	67.0	T.
855	Sept. 1	11. 40	Beaver Tail Light, SW. by S., 3 miles.	S., $\frac{1}{2}$ mile....	6	Sand	69.0	67.0	67.0	T.
856	Sept. 1	12. 05 p. m.	Beaver Tail Light, SW. $\frac{1}{2}$ W., $\frac{1}{2}$ miles.	S. SE., $\frac{1}{2}$ mile....	31	Sand	70.0	68.0	68.0	T.
857	Sept. 1	12. 35	Beaver Tail Light, W. SW. $\frac{1}{2}$ W., $\frac{1}{2}$ mile.	SE., $\frac{1}{2}$ mile....	19	Sand, gravel, shells	69.0	68.0	67.0	R. D.
858	Sept. 1	1. 05	Beaver Tail Light, W. NW. $\frac{1}{2}$ W., $\frac{1}{2}$ mile.	SE., $\frac{1}{2}$ mile....	14	Sand	69.0	63.0	63.0	R. D.
859	Sept. 3	11. 20 a. m.	Vineyard Sound: Cuttyhunk Light, N. $\frac{1}{2}$ W., 3 miles.	E., $\frac{1}{2}$ mile....	17 $\frac{1}{2}$	Coarse sand, broken shells..	62.0	63.0	66.0	R. D.
860	Sept. 3	11. 55	Cuttyhunk Light, N. $\frac{1}{2}$ W., 3 miles.	W., $\frac{1}{2}$ mile....	17 $\frac{1}{2}$	Sand and mud	68.0	66.0	63.0	R. D.
861	Sept. 3	12. 20 p. m.	Cuttyhunk Light, N. $\frac{1}{2}$ W., 3 miles.	W., $\frac{1}{2}$ mile....	17 $\frac{1}{2}$	do	70.0	66.0	64.0	R. D.
862	Sept. 3	12. 35	Cuttyhunk Light, N. $\frac{1}{2}$ W., 3 miles.	S., $\frac{1}{2}$ mile....	17	Sand	69.0	66.0	61.0	T.
863	Sept. 3	1. 40	Cuttyhunk Light, N. $\frac{1}{2}$ W., 3 miles.	S., $\frac{1}{2}$ mile....	18	do	68.0	66.0	64.0	T.
864	Sept. 3	3. 00	Gay Head Light, S. SW., $\frac{1}{2}$ W., 5 miles.	S., $\frac{1}{2}$ mile....	13	Sand and mud	70.0	67.0	65.0	R. D.
865	Sept. 3	3. 40	Gay Head Light, S. SW., $\frac{1}{2}$ W., 5 miles.	S., $\frac{1}{2}$ mile....	13	Sand and broken shells	70.0	67.0	61.0	R. D.

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.		Apparatus used.
									Air.	Bot- tom.	
865	1880 Sept. 4	5.40 a. m.	40 05	70 23	Atlantic Ocean:	E.N.E., $\frac{1}{2}$ mile.	65	Compact fine sand and mud.	71.0	68	T.
866	Sept. 4	6.30	40 05 18	70 22 18	Off Martha's Vineyard.	N.E. by E., $\frac{1}{2}$ mile.	65	Fine sand and mud.	73.0	68.5	T.
867	Sept. 4	7.04	40 05 42	70 22 06	do.	E.S.E., $\frac{1}{2}$ mile.	64	Compact hard sand and broken shells.	73.0	53.0	R. D.
868	Sept. 4	8.23	40 01 42	70 22 30	do.	N.W., $\frac{1}{2}$ mile.	162	Fine sand and black specks.	75.0	47.0	T.
869	Sept. 4	9.27	40 02 18	70 23 06	do.	N.N.E., $\frac{1}{2}$ mile.	192	Fine sand.	80.0	70.0	T.
870	Sept. 4	10.59	40 02 36	70 22 53	do.	W. by N., $\frac{1}{2}$ mile.	155	Mud and fine sand.	80.0	77.0	T.
871	Sept. 4	11.40	40 02 54	70 23 40	do.	N.W., $\frac{1}{2}$ mile.	115	Mud and fine sand.	84.0	49.0	T.
872	Sept. 4	12.45 p. m.	40 05 39	70 23 52	do.	N.W. by N., $\frac{1}{2}$ mile.	86	Sand, gravel, shells, and sponge.	81.0	50.5	T.
873	Sept. 13	5.36 a. m.	40 02	70 37	do.	N.W. by N., $\frac{1}{2}$ mile.	100	Soft sticky mud.	68.0	69.5	T.
874	Sept. 13	6.26	40 00 00	70 37 00	do.	N.W., $\frac{1}{2}$ mile.	85	do.	70.0	51.0	T.
875	Sept. 13	7.51	39 57 00	70 37 30	do.	N.E., $\frac{1}{2}$ mile.	126	do.	70.0	53.0	T.
876	Sept. 13	8.45	39 57 00	70 56 00	do.	N., $\frac{1}{2}$ mile.	120	do.	68.0	70.0	T.
877	Sept. 13	9.40	39 56 00	70 54 18	do.	N.N.W., $\frac{1}{2}$ mile.	126	do.	71.0	57.0	T.
878	Sept. 13	11.09	39 55 00	70 54 15	do.	N.W., $\frac{1}{2}$ mile.	142 $\frac{1}{2}$	Mud.	72.0	71.0	T.
879	Sept. 13	1.20 p. m.	39 49 30	70 54 00	do.	N by W., $\frac{1}{2}$ mile.	225 $\frac{1}{2}$	Sand and blue mud.	73.0	71.5	T.
880	Sept. 13	3.12	39 48 30	70 54 00	do.	W by N., $\frac{1}{2}$ mile.	232 $\frac{1}{2}$	Mud.	74.0	43.0	T.
881	Sept. 13	5.00	39 46 30	70 54 00	do.	W.N.W., $\frac{1}{2}$ mile.	325	do.	70.0	42.0	T.
882	Sept. 17	10.56 a. m.			Narragansett Bay.						
883	Sept. 17	11.35			Halfway Rock N. N.E. $\frac{1}{2}$ E., 2 $\frac{1}{2}$ miles.	SW., $\frac{1}{2}$ mile.	12 $\frac{1}{2}$	Mud.	68.0	65.0	T.
884	Sept. 17	2.10 p. m.			Halfway Rock N.E. by N., 2 $\frac{1}{2}$ miles.	SW., $\frac{1}{2}$ mile.	13	do.	70.0	65.0	R. D.
885	Sept. 17	3.15			Hope Island, N.E. $\frac{1}{2}$ E., 200 yards.	SW., $\frac{1}{2}$ mile.	3	do.	72.0	63.0	O. I.
					Gould Island, N. by E., $\frac{1}{2}$ E., $\frac{3}{8}$ mile.	S., $\frac{1}{2}$ mile.	16	Mud and shells.	71.0	63.0	O. I.
					Off Block Island:						
886	Sept. 21	12.49			South Light of Block Island, N. $\frac{1}{2}$ E., $\frac{5}{8}$ miles.	N., $\frac{1}{2}$ mile.	19	Shells and coarse gravel.	67.0	64.0	D.
887	Sept. 21	1.30			South Light of Block Island, N. $\frac{1}{2}$ W., $\frac{5}{8}$ miles.	W., $\frac{1}{2}$ mile.	19	do.	67.0	64.0	T.
888	Sept. 21	2.00			South Light of Block Island, N. by E., 6 miles.	W., $\frac{1}{2}$ miles.	19	do.	68.0	64.0	T.
889	Sept. 21	3.50			South Light of Block Island, W. $\frac{1}{2}$ S., 5 miles.	W.S.W., $\frac{1}{2}$ mile.	11	Hard sand and rocks.	68.0	61.5	D.
890	Sept. 21	4.15			South Light of Block Island, W. $\frac{1}{2}$ S., $\frac{3}{4}$ miles.	W.S.W., $\frac{1}{2}$ mile.	11	do.	68.0	64.0	D.
891	Oct. 2	6.00 a. m.	39 46 00	71 10 00	Atlantic Ocean, off Martha's Vineyard.	N., $\frac{1}{2}$ mile.	480?	Soft, brown mud.	60.0	67.0	T.
892	Oct. 2	8.46	39 46 00	71 05 00	do.	N.N.E., 2 miles.	487	Soft, brown mud and small stones.	64.0	65.0	T.
893	Oct. 2	11.23	39 52 20	70 58 00	do.	N., 1 mile.	372	do.	63.0	64.0	T.
894	Oct. 2	1.10 p. m.	39 53 00	70 58 30	do.	N., 2 miles.	365	do.	63.0	64.0	T.

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.		Apparatus used.
									Air.	Surf. Bot. tom.	
1881					Atlantic Ocean:						
944	Aug. 9	8.27 a. m.	40 01 00	71 14 30	Off Martha's Vineyard	NW. by N, 1½ miles.	128	Mud, sand, and shells	73.0	70.0	51.0 T.
945	Aug. 9	12.05 p. m.	39 58 00	71 13 00	do	NW. by N, 2 miles.	207	Green mud and sand	75.0	71.0	44.0 T.
946	Aug. 9	2.00	39 55 50	71 14 00	do	NW. by W, 1½ miles.	247	do	75.5	71.0	47.0 T.
947	Aug. 9	4.00	39 53 30	71 13 30	do	W.N.W., 3 miles.	319	Sand and mud	75.0	70.0	44.0 T.
948	Aug. 13	5.20			Buzzard's Bay:	W.S.W., 1 mile.	7	Black mud and shells	76.0	67.0	68.0 T.
					Penikese Island east, 2 miles.						
					Atlantic Ocean:						
949	Aug. 23	4.20 a. m.	40 09 00	70 31 00	Off Martha's Vineyard	N.N.W., 2 miles.	100	Yellow mud	68.0	66.0	52.0 R. D.
950	Aug. 23	5.50	40 07 00	70 32 00	do	N.N.W., 1½ miles.	71	Sand, shells, and mud	69.0	63.0	32.0 T.
951	Aug. 23	9.40	39 57 00	70 31 30	do	N.N., 1½ miles.	223	Mud	78.0	67.5	41.0 T.
952	Aug. 23	11.28	39 55 00	70 28 00	do	N.E., by N, 1½ miles.	396	Yellow mud and sand	82.0	68.0	40.0 T.
953	Aug. 23	2.30 p. m.	39 52 30	70 17 30	do	N.N.W., 1½ miles.	724	Mud	77.0	68.0	39.5 T.
954	Aug. 23	4.50	39 53 00	70 18 30	do	N.N.W., 2 miles.	651	Sand and mud	74.5	68.0	33.5 T.
955	Aug. 26	10.50 a. m.			Buzzard's Bay:	W. by S, ½ mile.	7	Sand	69.0	67.5	63.0 T.
					Nye's Neck, E. by S, ½ mile.						
956	Aug. 26	11.26			Nye's Neck, S.S.E., ½ mile.	W. by S, ½ mile.	54	do	71.0	69.0	69.0 T.
957	Aug. 26	11.45			Nye's Neck, S.S.E., ½ mile.	W. ½ N., ½ mile.	6	Sand and stones	73.0	69.5	68.0 T.
958	Aug. 26	12.20 p. m.			Nye's Neck, S. by E, ½ mile.	W.S.W., ½ mile.	5	Sand, stones, shells	75.0	70.0	68.0 T.
959	Aug. 26	12.40			Nye's Neck, S. ½ mile.	West, ½ mile.	5	do	72.0	69.0	68.0 T.
960	Aug. 26	1.10			Nye's Neck, S. ½ mile.	S.W. by W, ½ mile.	4½	do	72.5	69.5	68.0 T.
961	Aug. 26	1.52			Nye's Neck, N.E. ½ E., 2½ miles.	W. by S, ½ mile.	8	Black mud	71.5	69.0	68.0 T.
962	Aug. 26	3.10			Woopocket Island, N.E. ½ E., 1½ miles.	W.N.W., ½ mile.	8	Black mud, sand	71.0	68.0	63.0 D.
963	Aug. 26	3.40			Woopocket Island, S.E. ½ S., 1 mile.	W.S.W., ½ mile.	8½	Brown mud	70.0	68.0	63.0 D.
					Off Chatham, Cape Cod (Oran ledge):						
964	Aug. 30	7.50 a. m.			Chatham Lights, N.W. ½ W., 5 miles.	S.S.E., ½ mile	10	Sand, gravel	65.0	61.0	55.0 D.
965	Aug. 30	8.15			Chatham Lights, N.W. by W., 6 miles.	S.E. by E, ½ mile.	15	do	65.0	61.0	53.0 D.
966	Aug. 30	8.40			Chatham Lights, N.W. by W., 6 miles.	S.E., ½ mile.	16	Sand, small stones	65.0	61.0	52.0 D.
967	Aug. 30	8.50			Chatham Lights, N.W. by W., 6 miles.	S.E., ½ mile	16	Sand, gravel	66.0	61.0	52.0 D.
968	Aug. 30	9.00			Chatham Lights, N.W. by W., 7½ miles.	N.W. by W, ½ mile.	18	Gravel	66.0	61.5	50.5 D.
969	Aug. 30	9.10			Chatham Lights, N.W. by W., 7 miles.	S.E., ½ mile.	18	Sand, pebbles	66.0	61.5	51.0 D.
970	Aug. 30	9.43			Chatham Lights, W.N.W., ½ mile.	W.N.W., ½ mile.	13	do	67.0	61.0	54.0 D.
971	Aug. 30	10.05			Chatham Lights, W. ½ N., 4½ miles.	S.S.E., ½ mile.	11	Sand, gravel, pebbles	67.0	61.5	54.0 D.

972	Aug. 30	10.48	Chatham Lights, NW. by W. $\frac{1}{2}$ W., 7 $\frac{1}{2}$ miles.	NE., $\frac{1}{2}$ mile	16	Sand, gravel, stones	67.0	62.0	52.0	D.
973	Aug. 30	11.10	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	W.S.W., $\frac{1}{2}$ mile	17	do	67.0	62.0	51.0	D.
974	Aug. 30	11.30	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	W.S.W., $\frac{1}{2}$ mile	16	do	67.0	62.0	51.0	D.
975	Aug. 30	11.45	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	16	do	68.0	63.0	52.0	D.
976	Aug. 30	12.00 m.	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	16	do	68.0	63.0	52.0	D.
977	Aug. 30	12.20 p.m.	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	W. by N., $\frac{1}{2}$ mile	17	do	70.0	64.0	52.0	D.
978	Aug. 30	12.30	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	W. by N., $\frac{1}{2}$ mile	17	do	70.0	64.0	52.0	D.
979	Aug. 30	12.40	Chatham Lights, W.N.W., 6 $\frac{1}{2}$ miles	W. by N., $\frac{1}{2}$ mile	16	Sand	70.0	64.0	52.0	D.
980	Aug. 30	1.00	Chatham Lights, NW. by W. $\frac{1}{2}$ W., 5 $\frac{1}{2}$ miles.	SW., $\frac{1}{2}$ mile	14	Sand, stones, pebbles	70.0	62.0	53.0	D.
981	Aug. 30	2.10	Chatham Lights, W.N.W., 16 miles	S. $\frac{1}{2}$ W., 1 $\frac{1}{2}$ miles	43	Sand, gravel	65.0	63.5	49.0	T.
982	Aug. 30	2.15	Off Chatham, Cape Cod	S.W., 1 $\frac{1}{2}$ miles	42	do	65.0	63.5	41.5	T.
983	Aug. 30	3.23	do	S. by E., $\frac{1}{2}$ mile	36	Sand	64.5	64.0	42.0	T.
984	Aug. 30	4.07	do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	33	Mud and sand	64.0	63.5	41.5	T.
985	Sept. 7	12.35 p.m.	Atlantic Ocean: Off Martha's Vineyard	SW. by S., 1 $\frac{1}{2}$ miles	26	Sand	73.0	66.0	50.0	T.
986	Sept. 7	2.08	do	S. $\frac{1}{2}$ W., 1 mile	28	do	73.0	67.0	40.0	T.
987	Sept. 7	2.28	do	S. $\frac{1}{2}$ W., 1 mile	28	do	73.0	67.0	49.0	R.D.
988	Sept. 7	3.30	do	S. $\frac{1}{2}$ mile	30	do	73.0	67.0	49.5	R.D.
989	Sept. 7	4.00	do	S. $\frac{1}{2}$ mile	30	do	73.0	67.0	49.5	T.
990	Sept. 7	5.08	do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	34	Green mud and sand	71.5	66.0	47.0	T.
991	Sept. 7	6.05	do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	34	do	70.0	66.0	47.5	T.
992	Sept. 7	7.30	do	S. $\frac{1}{2}$ mile	36	do	69.0	65.0	48.0	T.
993	Sept. 7	8.20	do	S. $\frac{1}{2}$ mile	39	Mud	69.0	65.0	46.5	T.
994	Sept. 8	4.50 a.m.	do	W.N.W., 2 miles	368	do	72.0	68.0	40.5	T.
995	Sept. 8	6.32	do	W.N.W., $\frac{1}{2}$ mile	338	Yellow mud and sand	72.0	68.0	40.5	T.
996	Sept. 8	7.35	do	N.W., $\frac{1}{2}$ mile	246	do	75.0	67.5	40.0	R.D.
997	Sept. 8	8.03	do	N. by W., 1 mile	335	Yellow mud	75.0	67.5	40.0	T.
998	Sept. 8	10.34	do	N., $\frac{1}{2}$ miles	302	Green mud	74.0	68.0	40.0	T.
999	Sept. 8	11.48	do	N. N.W., $\frac{1}{2}$ mile	266	do	73.0	68.0	40.0	R.D.
1000			(Dredgings by steamer Lookout. Nos. 1006 to 1013 close off Gay Head; 1014 N. of Lucas Shoal, Vineyard Sound.)							
1001			Atlantic Ocean: Off Martha's Vineyard							
1025	Sept. 8	1.05 p.m.	do	N. $\frac{1}{2}$ E., 1 mile	216	do	71.0	69.0	45.0	T.
1026	Sept. 8	2.55	do	N. by E., 1 $\frac{1}{2}$ miles	182	Green mud, sand	69.0	69.0	47.5	T.
1027	Sept. 14	7.23 a.m.	do	N., $\frac{1}{2}$ mile	93	Fine sand	61.0	65.0	48.5	T.
1028	Sept. 14	9.01	do	N. N.E., $\frac{1}{2}$ mile	410	Yellow mud	66.5	66.0	41.0	T.
1029	Sept. 14	12.13 p.m.	do	N.E. by N., 1 mile	458	Yellow mud, sand	72.0	68.0	40.0	T.
1030	Sept. 14	1.52	do	N. by W., 1 $\frac{1}{2}$ miles	337	Yellow mud	65.0	66.0	41.0	R.D.
1031	Sept. 14	2.54	do	NW. by N., 1 $\frac{1}{2}$ miles	255	do	64.0	65.0	46.0	T.
1032	Sept. 14	4.00	do	NW., $\frac{1}{2}$ mile	208	do	65.0	65.0	46.0	T.
1033	Sept. 14	4.55	do	N. N.W., 2 miles	163	Sand, gravel	66.0	63.0	46.0	T.
1034	Sept. 14	5.55	do	N. N.W., $\frac{1}{2}$ mile	146	Sand and yellow mud	66.0	62.0	46.5	T.
1035	Sept. 14	6.56	do	N., $\frac{1}{2}$ mile	120	Sand	65.0	62.0	47.0	R.D.
1036	Sept. 14	7.54	do	N. N.W., 1 $\frac{1}{2}$ miles	94	do	62.0	61.5	51.0	R.D.

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

Serial num-ber.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bot- tom.	
1037	1881. Sept. 15	8.00 a. m.	° ' "	° ' "	Off Gay Head, Martha's Vineyard: Gay Head Light, N.E. $\frac{1}{2}$ N., 4 miles. Atlantic Ocean.		16	Sand.				T.
1038	Sept. 21	6.55	39 58	70 06	Off Martha's Vineyard.	N. by E., 1 mile.	146	Sand and shells.	67.0	67.0	47.0	T.
1039	Sept. 21	9.35	39 59	70 06	do	N. by E., 2 miles	130	do	66.5	67.0	50.0	T.
1040	Sept. 21	10.43	40 00	70 06	do	N. by E., 2 miles	93	do	64.0	68.0	66.0	D.
1041	Sept. 22	12.35 p. m.			Vineyard Sound, Mass.: West Chop Light, E. $\frac{1}{2}$ N., $\frac{1}{2}$ miles.	W.S.W., $\frac{3}{4}$ mile.	9	Sand and gravel.	63.5	65.0	65.0	T.
1042	Sept. 22	1.17			Atlantic Ocean: West Chop Light, E. $\frac{1}{2}$ N., $\frac{1}{2}$ miles.	W. by N., $\frac{3}{4}$ mile.	6	do	62.5	65.0	63.0	T.
1043	Oct. 10	7.17 a. m.	38 39	73 11	Off the Capes of Delaware.	N.W. by N., $\frac{1}{2}$ miles.	130	Sand.	63.5	65.5	49.0	T.
1044	Oct. 10	8.15	38 37	73 12	do	W.N.W., $\frac{3}{4}$ mile.	224	Gray mud.	65.0	66.0	42.5	T.
1045	Oct. 10	9.32	38 35	73 13	do	W. $\frac{1}{2}$ N., $\frac{3}{4}$ mile.	312	do	67.0	66.0	40.0	T.
1046	Oct. 10	11.14	38 33	73 18	do	W.N.W., $\frac{3}{4}$ mile.	104	Sand.	66.0	66.0	51.0	T.
1047	Oct. 10	12.15 p. m.	38 31	73 21	do	N.W., $\frac{1}{2}$ miles.	156	do	69.0	66.0	49.0	T.
1048	Oct. 10	1.55	38 29	73 21	do	W., 2 miles.	435	Mud.	71.0	66.0	40.0	T.
1049	Oct. 10	3.30	38 28	73 22	do	N.N.W., 2 miles.	435	do	63.0	66.0	40.0	T.
1050	1882. Feb. 27	2.00 p. m.			Chesapeake Bay: Point No Point, N.N.E., $\frac{1}{2}$ miles.		3 $\frac{1}{2}$	Mud, shells, gravel.	50.0	41.0		O.D.
1051	Feb. 27	2.15			Point No Point, N. by E., 1 mile.		2	Mud, grass.	50.0	41.0	40.0	O.D.
1052	Feb. 27	2.30			Point No Point, N.N.E., $\frac{3}{4}$ mile.		1 $\frac{1}{2}$	do	50.0	41.0	40.0	O.D.
1053	Feb. 27	2.45			Point No Point, N. by E., $\frac{1}{2}$ miles.		2 $\frac{1}{2}$	Mud, shells, oysters.	50.0	41.0	40.0	O.D.
1054	Feb. 27	2.50			Point No Point, N. by E., $\frac{1}{2}$ miles.		2 $\frac{1}{2}$	do	50.0	41.0	40.0	O.D.
1055	Feb. 28	10.40 a. m.			Patuxent River, Maryland: Drum Point, N.E., $\frac{1}{2}$ mile.		6	Brown mud, shells.	46.0	40.0		D.
1056	Feb. 28	10.55			Chesapeake Bay: Drum Point, N.N.E., $\frac{1}{2}$ mile.		6	do	46.0	40.0		R.D.
1057	Feb. 28	12.00 m.			South end of Barren Island, E. by S., $\frac{1}{2}$ miles.	W.N.W., $\frac{1}{2}$ mile.	17-20	Brown mud.	49.0	40.0	40.0	T.
1058	Feb. 28	12.10 p. m.			South end of Barren Island, SE. by E., $\frac{1}{2}$ E., 2 miles.	W.N.W., $\frac{3}{4}$ mile.	3-25	do	49.0	40.0	40.0	T.
1059	Feb. 28	12.30			South end of Barren Island, SE. $\frac{1}{2}$ E., 2 miles.	W.N.W., $\frac{3}{4}$ mile.	23-25	do	40.0	40.0	40.0	T.
1060	Feb. 28	4.40			Smith's Point, S.W., 2 miles.	SE. by S., $\frac{3}{4}$ mile.	7	Brown mud, shells.	46.0	41.0	40.5	T.
1061	Mar. 2	11.20 a. m.			Smith's Point Light, S. by W., $\frac{1}{2}$ W., $\frac{1}{2}$ miles.	S., $\frac{1}{2}$ mile.	11-16	do	43.0	41.5	41.5	D.
1062	Mar. 2	11.40			Smith's Point Light, SW. $\frac{1}{2}$ S., $\frac{1}{2}$ miles.	S. by W., 1 mile.	16-9 $\frac{1}{2}$	do	48.0	41.5	41.5	T.
1063	Mar. 2	1.35 p. m.			South point of Tangier Island, N. by E., $\frac{3}{4}$ E., 2 $\frac{1}{2}$ miles.	N.E. by E., $\frac{3}{4}$ mile.	10	do	50.0	44.0	42.0	R.D.
1064	Mar. 2	2.17			South point of Tangier Island, N.N.W., 1 mile.	N.E. by E., $\frac{3}{4}$ mile.	20-9 $\frac{1}{2}$	do	50.0	42.0	42.0	R.D.

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.		Apparatus used.
									Air.	Surf. Bot- tom.	
	1882.				Vineyard Sound:						
1101	Aug. 18	12.15 p. m.		0 1 "	Nobuska Point Light, W. by S. 1½ miles	NE., 1 mile	5	Sand, gravel, shells.	78.0	72.0	71.0
1102	Aug. 18	1.10		" "	East Chop Light, NW. ¾ W., 2½ miles	E. by S., ¾ mile.	5	Coarse sand.	73.0	70.0	69.0
1103	Aug. 18	1.42		" "	East Chop Light, NW. by W., 2½ miles	E. by S., ¾ mile.	5	do	70.0	69.0	T.
1104	Aug. 18	2.12		" "	East Chop Light, W.N.W. ¾ W., 4 miles	N. by W., ¾ W., ¾ mile.	8½	Shells	79.0	70.0	69.0
1105	Aug. 18	3.00		" "	Cape Poge Light, S. by W., 4 miles	NE. by E. ¾ E., 2 miles.	10	Coarse sand.	80.0	72.0	71.0
1106	Aug. 18	3.35		" "	Cape Poge Light, S. by W. ¾ W., 5½ miles.	NE. by N., ¾ mile	5	Sand, shells.	80.0	72.5	72.0
1107	Aug. 22	6.00 a. m.	40 02	70 55	Atlantic Ocean	NW., 1 mile	116	Gray mud	69.5	71.0	48.0
1108	Aug. 22	6.35	40 02	70 37 30	Off Martha's Vineyard.	NW., ¾ mile	101	Gray mud, fine sand.	69.5	71.0	48.0
1109	Aug. 22	7.55	40 03	70 38	do	N.N.W., 1 mile.	89	Gray sand.	70.5	71.0	49.0
1110	Aug. 22	9.16	40 02	70 35	do	N. by W., ¾ W., 1 mile.	100	Green mud, fine sand.	73.0	72.0	47.0
1111	Aug. 22	10.45	40 01 33	70 35	do	N.N.E. ¾ E., 1 mile.	124	Fine sand.	76.0	72.0	47.0
1112	Aug. 22	12.43 p. m.	39 56	70 35	do	NW. by N., 1 mile.	245	Green mud, sand.	72.0	72.0	43.0
1113	Aug. 22	1.45	39 57	70 37	do	N., 1 mile.	192	Green mud.	75.0	72.0	43.0
1114	Aug. 22	2.40	39 58	70 38	do	N. by W., 1 mile	171	do	74.0	72.0	43.0
1115	Aug. 22	3.28	39 59	70 41	do	W. by N., ¾ mile	146	Green mud, sand.	72.5	72.5	45.0
1116	Aug. 22	4.20	39 59	70 41	do	NW. by W., 1 mile.	144	do	77.0	72.0	46.0
1117	Aug. 22	5.30	40 02	70 45	do	N. by E., 1 mile	89	Fine sand.	78.0	72.0	48.0
1118	Aug. 22	6.20	40 03	70 45	do	N.E. by N., ¾ mile.	70	do	74.0	72.0	49.0
1119	Aug. 26	6.32 a. m.	40 08	68 45	do	NE. NW., ¾ mile.	97	Sand, broken shells.	68.0	65.0	48.0
1120	Aug. 26	7.41	40 05	68 48	do	NW. ½ miles.	194	Fine sand, stones.	69.0	65.0	43.5
1121	Aug. 26	9.05	40 04	68 49	do	W. by N., 1 mile.	234	do	65.0	65.0	41.5
1122	Aug. 26	10.28	40 02	68 50	do	NW., 1 mile.	351	do	70.0	67.0	40.5
1123	Aug. 26	12.00 m.	39 59 45	68 54	do	N.N.W., 1 mile.	787	Fine sand, green mud.	70.0	69.0	39.0
1124	Aug. 26	4.01 p. m.	40 01	68 54	do	NW. by N., 1 mile	640	Fine sand, green mud, lime-stone nodules.	65.0	63.0	39.0
1125	Aug. 26	5.45	40 03	68 56	do	NW. by W., 1 mile.	291	Sand, mud.	65.0	64.0	40.0
1126	Aug. 28	1.46 p. m.			Vineyard Sound, Menemsha Light:						
1127	Aug. 28	2.30			Gay Head Light-house, W. SW., 2½ miles.	SE. by E., ¾ mile.	14	Sand, black mud	72.0	66.0	67.5
1128	Aug. 28	3.10			Gay Head Light-house, W. by S., 3 miles.	E. SE., ¾ mile.	10	Gray sand, mud	66.0	64.0	T.
					Gay Head Light-house, W. ¾ S., 2½ miles.	S. by E., ¾ mile.	9	do	69.0	66.0	D.
					North of Noman's Land:						
1129	Sept. 2	2.00			Fishing Village, S., ¾ mile.	NE. by E., ¾ mile.	4	Sand, stones	72.0	65.0	62.0
1130	Sept. 2	2.13			Fishing Village S. ¾ E., ¾ mile.	NW. by N., ¾ mile	4	do	72.0	65.0	62.0
1131	Sept. 2	2.29			Fishing Village, SE. by E., ¾ mile.	E. by N., ¾ mile..	4	do	72.0	65.0	63.0

[illegible]

*Nos. 1145-1149 indicate the stations of the fishing schooner *Josie Reeves*, using cod trawl-lines.

Dredging stations of the steamer Fish Hawk from 1883 to 1887.

Serial num- ber.	Date.	Hour.	Latitude N.	Longi- tude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf. to d.	Bot- tom.	
1156	1883. Aug. 23	6.00 a.m.	40 13	70 29	Off Nantucket.	NW, 1 mile.	60	Mud.	71.0	67.0	45.0	T.
1157	Aug. 23	6.35	40 14	70 29 15	do	do	62	Soft mud.	73.0	70.0	45.0	T.
1158	Aug. 23	8.00	40 16	70 31	do	W by N, 1 mile	62	Soft green mud	74.0	67.0	45.0	T.
1159	Aug. 23	10.15	40 20	70 35	do	N, 1 mile	55	Soft mud.	74.0	67.5	44.0	T.
1160	Aug. 23	10.25	40 24	70 35	do	NNW, 3 mile	41	Black mud.	76.0	70.0	43.0	T.
1161	Aug. 23	12.45 p.m.	40 28	70 37	do	NW by W, 1 mile	45	do	77.0	69.0	44.0	T.
1162	Aug. 23	2.15	40 32	70 39	do	N by W, 1 mile	45	do	77.0	68.0	40.5	T.
1163	Aug. 23	2.25	40 35 30	70 41	do	NNW, by W, 3 mile	31	Sand and mud	77.0	71.0	46.0	T.
1164	Aug. 23	3.00	40 43	70 45	do	NNW, 3 mile	31	Mud	75.0	70.0	44.0	T.
1165	Aug. 23	6.25	40 50	70 49	do	NNW, 3 mile	32	Gray sand	72.0	68.0	45.0	T.
1166	Aug. 27	1.00			Off Menemsha Bight: Gay Head, W. 3 mile; S. 2 miles; north end of Nashawena, N. by W. 3 mile, 6 miles.	NW, 3 mile.	8	Sand.	77.0	66.5	65.5	T.
1167	Aug. 27	1.45			Gay Head, W. 3 mile; S. 2 1/2 miles; north end of Nashawena, NNW, 6 miles.	NW. by W., 3 mile.	9	do	77.0	.....	.....	T.
1168	Aug. 27	2.00			Gay Head, W. by S. 3 mile; S. 2 1/2 miles; north end of Nashawena, N. by W. 5 1/2 miles.	ENE, 3 mile	11	do	76.0	.....	.....	T.
1169	Aug. 27	2.30			Gay Head, W. by S. 3 mile; S. 2 1/2 miles; north end of Nashawena, NNW, 3 mile; W. 5 1/2 miles.	S, 3 mile	12	do	77.0	66.0	64.5	T.
1170	Aug. 27	3.00			Gay Head, W. by S. 2 1/2 miles; north end of Nashawena, NNW, 6 1/2 miles.	NNW, 3 mile.	12	do	77.0	67.0	65.0	T.
1171	Sept. 6	12.05			Off Martha's Vineyard: Katama Point, E. 3 mile; S. 1 mile.	W, 3 mile.	2-4	do	66.0	68.5	62.0	D.
1172	Sept. 6	12.15			Katama Point, E. 3 mile; S. 1 1/2 miles.	do	5	do	66.0	68.0	62.0	D.
1173	Sept. 6	1.05			Katama Point, E. 3 miles.	do	2 1/2	do	66.0	68.0	63.0	D.
1174	Sept. 6	1.43			Katama Point, E. 3 miles.	S. by E, 3 mile.	5	do	67.0	68.0	63.0	D.
1175	Sept. 6	2.05			Katama Point, E. 3 mile; S. 3 1/2 miles; SE. end of No Man's Land, W. by S, 7 1/2 miles.	S, 3 mile.	5 1/2	do	67.0	68.0	63.0	T.
1176	Sept. 6	3.12			SE. end of No Man's Land, W. by S, 7 1/2 miles.	S. by W., 3 mile.	13	do	68.0	67.0	60.0	T.
1177	1884. Aug. 18	12.00 m.			East of Martha's Vineyard: Near Howe's Shoal and Buoy No. 4.	W. by S. 3 mile; S, 3 mile.	3-7	do	73.0	69.0	.....	T.
1178	Aug. 25	12.30 p.m.			Menemsha Bight: Gay Head, SW. 3 mile; S. 1 1/2 miles; S. end of Nashawena, NW, 3 miles.	NE	13	Hard	72.0	66.0	.....	T.
1179	Aug. 25	1.15			Gay Head, SSW. 3 mile; S. end of Nashawena, N. 3 mile.	NE, 3 mile	12 1/2	Sticky	79.0	66.0	.....	T.

Dredging stations of the steamer Fish Hawk from 1883 to 1887—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bot. tom.	
1197	1887. Aug. 9	10. 50	.....	.....	Off Falmouth: Noboka Light, S. by W. $\frac{1}{2}$ W.; East Chop Light, SE. $\frac{1}{2}$ S. 9 miles; Falmouth Heights, E. N. E.	.....	4 $\frac{1}{2}$	Shells, sand	72.0	72.0	71.5	T.
1198	Aug. 9	11. 05	.....	.....	Noboka Light, W. $\frac{1}{2}$ S. 2 miles; Falmouth, NE. by E. 1 mile.	E. $\frac{1}{2}$ mile	4 $\frac{3}{4}$	Shells, grass, sand	70.0	72.0	71.5	T.
1199	Aug. 9	11. 28	.....	.....	Noboka Light, SW. by W. $\frac{1}{2}$ W. $\frac{1}{2}$ miles; East Chop Light, SE., 9 miles.	ESE., $\frac{1}{2}$ mile	4	Shells, sand, gravel, grass.	70.0	72.0	71.5	T.
1200	Aug. 9	11. 49	.....	.....	Noboka Light, W. by S., 2 miles; Falmouth, NE. by E., $\frac{1}{2}$ miles; East Chop Light, SE. by S., 8 $\frac{1}{2}$ miles.	S. by E., $\frac{1}{2}$ mile	5 $\frac{1}{4}$	Sand, shells, mud	70.0	71.0	72.0	T.
1201	Aug. 9	12. 20 p. m.	.....	.....	Noboka Light, SW. by W. $\frac{1}{2}$ W. $\frac{1}{2}$ miles; East Chop Light, SE. by S. $\frac{1}{2}$ S., 9 miles.	NE., $\frac{1}{2}$ mile	2 $\frac{1}{4}$	Sand, gravel	71.0	71.0	72.0	T.
1202	Aug. 9	3. 50	.....	.....	Menemsha Light: Gay Head Light, W. $\frac{1}{2}$ S., 4 $\frac{1}{2}$ miles; Centre Quick's Hole, N. by W. $\frac{1}{2}$ W.; Tarpaun Cove, NNE. $\frac{1}{2}$ E. 7 miles.	NW. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	7	Hard sand	69.0	67.0	68.0	T.
1203	Aug. 9	4. 07	.....	.....	Gay Head Light, W. by S.; Centre Quick's Hole, N. by W. $\frac{1}{2}$ W.; Tarpaun Cove, NNE. $\frac{1}{2}$ E. 7 miles.	NW. $\frac{3}{4}$ W., $\frac{3}{4}$ mile	8	do	70.0	69.0	67.0	T.
1204	Aug. 9	4. 25	.....	.....	Gay Head Light, WSW., 3 miles; Centre Quick's Hole, N. by W. $\frac{1}{2}$ W. $\frac{1}{2}$ miles; Tarpaun Cove, NE. by N. $\frac{1}{2}$ N., 8 miles.	N. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	9	do	70.0	69.0	68.0	T.
1205	Aug. 11	10. 42 a. m.	.....	.....	Off East Chop: Noboka Light, NW. $\frac{3}{4}$ W.; West Chop, W. by N. $\frac{3}{4}$ N., 2 miles; East Chop, W. by N. $\frac{3}{4}$ N.	W. by S., $\frac{1}{2}$ mile	10	Shells, sand, rock	73.0	71.0	72.0	D.
1206	Aug. 11	10. 55	.....	.....	Noboka Light, NW. $\frac{1}{2}$ W., 5 $\frac{1}{2}$ miles; West Chop, W. by N. $\frac{3}{4}$ N.	E. by S., $\frac{1}{2}$ S., $\frac{1}{2}$ mile	11	Sand, shells, gravel, mud.	73.0	70.5	72.0	D.
1207	Aug. 11	11. 10	.....	.....	Noboka Light, NW. $\frac{1}{2}$ W.; West Chop, W. by N. $\frac{3}{4}$ N.	E. by S. $\frac{1}{2}$ S., $\frac{1}{2}$ mile	11 $\frac{1}{2}$	Sand, gravel	73.0	71.0	72.0	D.
1208	Aug. 11	11. 29	.....	.....	West Chop, W. by N. $\frac{3}{4}$ N.; Noboka Light, NW. $\frac{1}{2}$ N.; Edgartown Light, S. $\frac{1}{2}$ W.; East Chop, W. by N. $\frac{3}{4}$ N.	.....	10	Sand, gravel, shells	73.0	70.5	72.0	D.

No.	Date	Time	Locality	Distance	Direction	Depth	Bottom	Temperature	Remarks
1209	Aug. 11	12.50 p. m.	Muskeget Channel: SE. end Martha's Vineyard, SW. ¾ S.; Cape Poge, N. ¾ E.; Life-sav- ing station on Muskeget Island, SE. ¾ E.	N. ¼ mile	5	Sand	70.0	69.0	69.5
1210	Aug. 11	1.13	SE. end Martha's Vineyard, SW. by S. ¼ S.; Cape Poge, N. ¾ W.; Muskeget, SE. ¾ E.	N. ¼ mile	3	do	70.5	70.0	71.0
1211 to 1221	Aug. 15		Buzzard's Bay: From West Island to N. end of Wood's Holl.		6-8½	Black mud, shells, grass.	69.5	70.0	71.1
1222	Aug. 27	10.08 a. m.	Vineyard Sound: Nobleska Light, N. by W. ¼ W.; Tar- paulin Cove, W. ¾ S.; West Chop, SE. ¼ S.	W. ¾ mile	12½	Sand, shells	67.0	68.0	69.0
1223	Aug. 27	10.20	Nobleska Light, NW. by N. ¾ N.; Tar- paulin Cove, W. ¾ S.; West Chop SE. ¼ S.	W. ¾ mile	12	do	67.0	68.0	68.0
1224	Aug. 27	10.36	Nobleska Light, N. ½ E.; Tarpaulin Cove, W. ¾ S.; West Chop, SE. by E. ¾ E.	W. ¾ mile	11½	do	67.0	68.0	68.0
1225	Aug. 27	10.55	Nobleska Light, N. by E. ¼ E.; Tar- paulin Cove, W. ¾ S.; West Chop, SE. by E. ¼ E.	W. ¾ mile	13	Shells, gravel, sand	67.0	68.0	68.0
1226	Aug. 27	11.14	Nobleska Light, NNE.; Tarpaulin Cove, W. ¾ S.; West Chop, E. by S, ¾ S.	W. ¾ mile	13	Sand, shells	67.0	68.0	68.0
1227	Aug. 27	11.32	Nobleska Light, NE. ¾ N.; Tarpaulin Cove, W. ¾ S.; West Chop, E. by S, ¾ S.	W. ¾ mile	13	do	67.0	68.0	68.0
1228	Aug. 29	10.42	Vineyard Sound Light-ship W.; Cut- tyhunk, NW. ¾ W.; Gay Head, SE, ¾ S.	W. ¾ mile	18	Sand	65.0	64.0	61.0
1229	Aug. 29	11.12	Vineyard Sound Light-ship, W. ¾ S.; Cuttyhunk, NW. ¾ N.	W. ¾ mile	15½	do	64.0	64.0	62.0
1230	Aug. 29	11.47	Vineyard Sound Light-ship, W. ¾ N.; Cuttyhunk, N. by W. ¾ W.; Gay Head, SE. ¾ E.	W. ¾ mile	14	do	65.0	64.0	61.0
1231	Aug. 29	12.15 p. m.	Vineyard Sound Light-ship, W. by N. ¾ N.; Cuttyhunk, N. by W. ¾ W.; Gay Head, SE. ¾ E.	W. ¾ mile	16	do	65.0	64.0	62.0
1232	Aug. 29	1.00	Vineyard Sound Light-ship, W. by N. ¾ N.; Cuttyhunk, NW. by N. ¾ N.; Gay Head, SE. ¾ E.	W. ¾ mile	13	Mud, shells	65.0	64.0	62.5
1233	Aug. 29	1.27	Vineyard Sound Light-ship, W. ¾ N.; Cuttyhunk, NW. ¾ N.; Gay Head, SE. ¾ S.	W. ¾ mile	13½	Sand, shells	65.0	64.0	62.0
1234	Aug. 29	1.49	Vineyard Sound Light-ship, W. ¾ N.; Cuttyhunk, NW. by N. ¾ N.; Gay Head, SE. ¾ E.	W. ¾ mile	13½	do	65.0	64.0	62.5

Dredging stations of the Steamer Fish Hawk from 1883 to 1887—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bottom.	
1235	1887. Aug. 29	2. 10 p. m.	° ' "	° ' "	Vineyard Sound—Continued. Vineyard Sound Light-ship, W. by N. $\frac{1}{2}$ N.; Cuttyhunk, NW. $\frac{1}{2}$ N.; Gay Head, SE, by S. $\frac{1}{2}$ S. Block Island Sound: Gay Head Light, NE, by E. $\frac{1}{2}$ E.; Cuttyhunk Light, N. by E.; No Man's Land, SE, by E. $\frac{1}{2}$ E. Gay Head Light, E. by N. $\frac{1}{2}$ N.; Cuttyhunk, NE, by N.; No Man's Land, SE, by E. $\frac{1}{2}$ E. Gay Head Light, E. by N. $\frac{1}{2}$ N.; Cuttyhunk, NE, by N. $\frac{1}{2}$ N.; No Man's Land, SE, by E. $\frac{1}{2}$ E. Hen and Chickens Light-ship, N. by E. $\frac{1}{2}$ E.; Cuttyhunk, NE, by N. $\frac{1}{2}$ N.; No Man's Land, SE, by E. $\frac{1}{2}$ E. Gay Head Light, E. by S. $\frac{1}{2}$ S.; No Man's Land, SSE, $\frac{1}{2}$ E.; Vineyard Sound Light-ship, NW, $\frac{1}{2}$ W. Nantucket Sound: Bishop and Clerks Light-ship, E. $\frac{1}{2}$ N.; Succunesset Light-ship, W. by N. $\frac{1}{2}$ N.	W., $\frac{1}{4}$ mile.....	12	Sand, shells.....	65.0	64.0	62.5	T.
1236	Aug. 30	9. 03 a. m.	.....	.....	.....	S. by E., $\frac{1}{2}$ mile.....	19 $\frac{1}{2}$	Hard.....	65.0	62.0	60.0	T.
1237	Aug. 30	10. 00	.....	.....	.....	$\frac{1}{2}$ mile.....	20	do.....	67.0	64.0	59.0	T.
1238	Aug. 30	10. 45	.....	.....	.....	$\frac{1}{2}$ mile.....	20	Sand, broken shells.....	65.0	64.0	61.0	D.
1239	Aug. 30	11. 35	.....	.....	.....	$\frac{1}{2}$ mile.....	16	Hard.....	65.0	62.0	61.0	T.
1240	Aug. 30	12. 44 p. m.	.....	.....	.....	$\frac{1}{2}$ mile.....	18 $\frac{1}{2}$	Blue mud.....	64.0	62.0	60.0	T.
1241	Sept. 5	10. 27 a. m.	.....	.....	.....	ESE., $\frac{1}{4}$ mile.....	21	Sand, broken shells.....	70.0	68.0	69.5	D.
1242	Sept. 5	10. 50	.....	.....	.....	NNW., $\frac{1}{4}$ mile.....	18	Sand, shells.....	70.0	68.0	69.0	T.
1243	Sept. 5	11. 15	.....	.....	.....	N. by E., $\frac{1}{4}$ mile.....	15 $\frac{1}{2}$	Sand, shells, rocks.....	70.0	68.0	69.5	D.
1244	Sept. 5	11. 54	.....	.....	.....	W. by N., $\frac{1}{4}$ mile.....	5 $\frac{1}{2}$	Sand, shells, mud.....	70.0	67.0	69.5	D.
1245	Sept. 5	12. 22 p. m.	.....	.....	.....	W. by N., $\frac{1}{2}$ mile.....	4 $\frac{1}{2}$	Sand, shells.....	68.0	68.0	69.5	T.
1246	Sept. 5	1. 00	.....	.....	.....	W. by N., $\frac{1}{2}$ mile.....	5 $\frac{1}{2}$	do.....	68.0	68.0	69.5	T.
1247	Sept. 6	9. 49 a. m.	41 00 45	71 00 05	Southwest of Gay Head	NE, $\frac{1}{2}$ N., $\frac{1}{2}$ mile.....	27	Sand.....	67.0	65.0	53.5	T.
1248	Sept. 6	10. 39	41 02 00	71 00 00	do.....	do.....	26 $\frac{1}{2}$	do.....	68.0	64.0	55.0	T.
1249	Sept. 6	11. 29	41 04 00	70 59 30	do.....	do.....	22 $\frac{1}{2}$	do.....	67.0	64.0	57.0	T.
1250	Sept. 6	12. 30 p. m.	41 06 00	70 59 15	do.....	do.....	20 $\frac{1}{2}$	do.....	67.0	64.0	58.5	T.
1251	Sept. 6	1. 36	41 10 00	70 59 15	do.....	do.....	17	do.....	67.0	64.0	60.0	T.

REPORT OF DREDGINGS OF THE ALBATROSS FOR 1883, BY LIEUT. SEATON SCHROEDER, U. S. N., NAVIGATOR.

The cruising of the *Albatross* during this first year of service has been included between the parallels of 35° and 45° north latitude and the meridians of 64° and 77° west longitude. The number of days under way, the object of each trip, and the distances performed are given in the following table:

Date.	Object.	Miles.
December 30, 1882, to January 3, 1883.	Wilmington, Del., to Washington, D. C.	339.4
February 10 to February 14.	Washington, D. C., to Wilmington, Del.	391.9
March 21 to March 25.	Dredging	425.4
April 24 to May 9.	Dredging and investigating migrations of mackerel.	1,476.6
May 19 to May 29.	do	1,025.1
June 17 to June 19.	New York to Washington, D. C.	426.1
July 6 to July 14.	Investigating migrations of mackerel and menhaden.	816.2
July 18 to July 21.	Dredging	446.6
July 25.	Newport, R. I., to Wood's Holl, Mass.	40.0
July 26 to August 3.	Dredging	682.3
August 7 to August 10.	Investigating migrations of mackerel and menhaden.	423.3
August 12.	Newport, R. I., to Wood's Holl, Mass.	40.0
August 13.	Wood's Holl, Mass., to New Bedford, Mass.	24.0
August 18.	New Bedford, Mass., to Wood's Holl, Mass.	24.0
August 21 to August 25.	Investigating migrations of mackerel and menhaden.	951.1
August 29 to September 7.	Dredging	859.5
September 11.	Wood's Holl, Mass., to New Bedford, Mass.	24.0
September 13.	New Bedford, Mass., to Wood's Holl, Mass.	24.0
September 20 to September 22.	Dredging	263.5
September 30 to October 5.	do	586.7
October 11.	Wood's Holl, Mass., to Newport, R. I.	40.0
October 17 to October 19.	Investigating migrations of mackerel and menhaden.	286.5
October 22 to October 25.	do	411.7
November 5 to November 14.	Dredging	1,020.3
December 28 to December 29.	Washington, D. C., to Baltimore, Md.	180.0
Total, 121 days.		11,228.2

I.—Dredging and trawling record, U. S. Fish Commission steamer Albatross, Lieutenant-Commander Z. L. Tanner, U. S. N., commanding, season of 1883.

ABBREVIATIONS FOR KINDS OF BOTTOM.—C. for clay; g. for gravel; m. for mud; oz. for ooze; p. for pebbles; s. for sand; sh. for shells; sp. for specks; st. for stones; blk. for black; brk. for broken; bu. for blue; crs. for coarse; dk. for dark; fine. for fine; glob. for Globigerina; gn. for green; gy. for gray; wh. for white; yl. for yellow.

Serial number.	Date.	Hour.	Locality.		Temperatures.		Depth.	Kind of bottom.	Wind.		Drift.		Instrument used.
			Latitude north.	Longitude west.	Air.	Surface.	Bottom.		Direction.	Force.	Direction.	Distance.	
	1883.		° ' "	° ' "	°	°	Fathoms.					Miles.	
2001	Mar. 22	3.25 p.m.	37 46 30	74 00 00	36	48	519	Gn. m.	NE.	3	NNW.	1.3	Deep-sea trawl.
2002	Mar. 23	5.50 a.m.	37 40 42	74 17 36	36	48	641	Gn. m.	N.	1	SSW.	1.3	Beam trawl.
2003	Mar. 23	8.44 a.m.	37 16 30	74 20 36	39	50	641		NE to E.	1	NW by W.	2	Do.
2004	Mar. 23	10.10 a.m.	37 19 45	74 26 06	45	51	102	Gn. m. sh.	E.NE.	1	SW.	0.6	Do.
2005	Mar. 23	11.52 a.m.	37 18 11	74 27 36	43	50	82	Bu. m. and s. brk. sh.	E.NE.	3	E.NE.	0.5	Do.
2006	Mar. 23	12.58 p.m.	37 19 11	74 26 06	40	50	542	Bu. m. and s.	SSW.	4	W. by S.	0.5	Do.
2007	Apr. 27	8.00 a.m.	35 09 40	75 13 00	65½	56	68	Fne. s.	Var.	0-1	E.NE.	2	Do.
2008	Apr. 27	10.15 a.m.	35 09 40	75 04 36	67	72	74½	Bu. m. fne. s.	W.	2	N by E ¼ E.	1	Do.
2009	Apr. 28	8.45 a.m.	35 39 35	74 46 45	64	69	531		W.	2-3	NE.	2.5	Deep-sea trawl.
2010	A. P. 28	10.40 a.m.	35 30 00	74 44 45	65	61	890		SW.	3	W. by S.	2	Do.
2011	A. P. 30	9.00 a.m.	36 38 30	74 40 10	47	48	81	S. and brk. sh.	NNE.	3-4	N. by E.	1.5	Beam trawl.
2012	A. P. 30	10.15 a.m.	36 41 15	74 39 50	47	52	88		NNE.	3-4	NE.	1.5	Rake dredge.
2013	A. P. 30	1.05 p.m.	36 45 30	74 25 30	50	48	373	Gn. m.	NNE.	3	NNW.	2	Beam trawl.
2014	May 1	6.35 a.m.	36 41 05	74 38 55	51½	47	45½	Gn. m. fne. s.	E.NE.	4	N.	2.5	Do.
2015	May 5	8.39 a.m.	37 31 00	74 53 30	49	48	19	Fne. s. and sh.	NE.	3	E. by N.	0.5	Do.
2016	May 5	9.06 a.m.	37 30 48	74 52 36	48½	46	18	Fne. s. and sh.	NE.	3	E. by N.	0.5	Do.
2017	May 5	9.50 a.m.	37 30 48	74 51 24	47½	54	39	Fne. s. and sh.	NE.	2	E. by N.	1	Rake dredge.
2018	May 7	12.07 p.m.	37 12 22	74 20 62	62	54	600	Bu. m.	SSW.	2	SSW.	1.5	Deep-sea trawl.
2019	May 7	4.13 p.m.	37 13 52	74 23 62	56½	52½	39	Bu. m. fne. s.	SE.	3	SW.	2	Do.
2020	May 21	5.30 a.m.	37 37 50	74 15 30	56	54	143	Bu. m. fne. s.	SE.	3	W. by S.	1.5	Beam trawl.
2021	May 21	7.00 a.m.	37 36 00	74 15 00	58	54	45	Bu. m. fne. s.	SE.	3	SW by S.	2	Do.
2022	May 21	10.00 a.m.	37 32 00	74 13 20	59	52	487		SE.	3	SW by S.	2	Deep-sea trawl.
2023	May 21	3.15 p.m.	37 48 00	74 01 30	62	56	377	Blk. m. fne. s.	SE.	3	NE.	2	Beam trawl.
2024	May 25	5.51 a.m.	40 02 10	70 27 00	52	49	40½	Dk. gn. m.	NNW.	2	NW by N.	2.5	Do.
2025	May 25	7.20 a.m.	40 02 10	70 27 00	57	49	239	Gn. m. fne. s.	NNW.	2	NW by N.	1.5	Do.
2026	May 25	9.40 a.m.	40 04 00	70 28 50	58	49	48	Gn. m. and s.	NNW.	2	NW ¼ N.	2.5	Do.
2027	May 25	12.21 p.m.	39 53 25	70 37 00	56	52	43	Bu. m. and s.	SW.	3	WSW.	2.5	Do.
2028	May 25	2.05 p.m.	39 57 50	70 32 00	56	52	41	Bu. m.	SW.	3	WSW.	2.5	Do.
2029	May 25	3.13 p.m.	39 42 00	70 47 00	57	53	38½	Gy. m.	SW.	3-4	SW ¼ W.	2	Dredge tangles.
2030	May 26	6.20 a.m.	39 29 45	71 43 00	56	49	588	Bu. m.	SW.	3-4	SE.	2	Beam trawl.
2031	May 26	1.05 p.m.	39 29 00	72 19 55	55	50	47½	Gy. m. blk. and wh. s.	SSW.	3-4	S.	1.5	Do.
2032	May 26	2.10 p.m.	39 29 00	72 19 40	55	50	74	Gy. m. blk. and wh. s.	SSW.	3-4	E.NE.	1	Do.
2033	May 26	5.00 p.m.	39 32 30	72 18 35	62	49½	40	Gn. m. fne. s., blk. sp.	SSW.	3-4	E.NE.	1	Do.
2034	July 17	8.55 a.m.	39 27 10	69 56 20	69	72	38	Glob. oz.	Var.	0-1	WSW.	2.5	Do.
2035	July 17	2.50 p.m.	39 26 16	70 02 37	73	71	1,362	Glob. oz.	SE.	2	SE.	2.3	Do.

2036	July 18	4.70 a.m.	38.52.40	69.21.40	82	76	38	1,735	Glob. oz.	SE.	3	S.	3.8	Do.
2037	July 18	1.22 p.m.	38.53.00	69.23.30	70	76	38	1,731	Glob. oz.	NE.	2	E.	3.7	Do.
2038	July 26	2.32 p.m.	38.10.30	69.23.30	77	76½	38	2,033	Glob. oz.	NE.	1	NE.	7.5	Deep-sea trawl.
2039	July 28	Noon.	38.19.26	68.08.23	77½	81	.....	2,069	Glob. oz.	S.	4	SE.	11	Do.
2040	July 29	4.20 a.m.	38.13.13	68.16.00	77	81	.....	2,226	Glob. oz.	SSW.	6	S. by E.	10	Do.
2041	July 30	3.15 a.m.	39.22.50	68.25.00	71	72	38½	1,608	Glob. oz.	NW.	3	NW.	10	Do.
2042	July 30	10.32 a.m.	39.33.00	68.26.45	74	71	38½	1,555	Glob. oz.	NW.	3	NW.	12	Do.
2043	July 30	5.07 p.m.	39.49.00	68.28.30	71	72	38½	1,467	Glob. oz.	W.	3	SW.	9	Do.
2044	July 31	5.25 a.m.	40.00.30	68.37.20	71	72	39	1,067	Oz.	W.	2	SW.	7	Do.
2045	July 31	Noon.	40.04.20	68.43.50	75	72	40	497	Bu. m., fue. sh.	W.	3	WNW.	2.5	Beam trawl.
2046	July 31	10.00 a.m.	40.02.49	68.49.00	74	72	40	407	Bu. m.	W.	3	WNW.	2.5	Do.
2047	July 31	3.15 p.m.	40.02.30	68.49.40	74	72	52	389	Bu. m., m. and g.	W.	3	WNW.	2.5	Deep-sea trawl.
2048	July 31	3.56 p.m.	40.02.00	68.50.30	73	72	29½	547	Crs. s., m. and g.	W.	4	W.	2	Do.
2049	Aug. 1	3.25 a.m.	39.43.40	69.20.30	71	71	39	1,025	Bu. m.	W.	3	W.	3.5	Do.
2050	Aug. 1	9.15 a.m.	39.42.50	69.21.20	72	72	44½	1,050	Glob. oz.	SW. by S.	3	SW. by S.	3.5	Beam trawl.
2051	Aug. 1	2.34 p.m.	39.41.00	69.20.50	74	73	39	1,098	Bu. m. and glob. oz.	SW. by W.	2	SW.	4	Do.
2052	Aug. 1	6.16 p.m.	39.40.05	69.21.25	74	73	45	1,105	Glob. oz.	SW. by W.	2	SW.	3	Do.
2053	Aug. 29	5.00 a.m.	42.02.00	68.27.00	60	61	.....	105	Bu. m.	ESE.	6	E.	1.4	Dredge.
2054	Aug. 29	6.20 a.m.	42.03.30	68.26.00	56	64	.....	99.5	Bu. m., s. and crs. g.	E.	5	NE. by N.	1.5	Do.
2055	Aug. 30	9.24 a.m.	42.32.00	68.17.00	60	60	.....	97	Bu. m., fue. s. and crs. g.	E.	3	NE. by N.	1	Do.
2056	Aug. 30	3.23 p.m.	42.01.30	68.01.00	58	57	.....	86	Crs. s., blk. sp., brk. sh.	W.	2	SW.	1	Do.
2057	Aug. 30	4.21 p.m.	42.01.00	68.00.30	58	57	.....	50	Gy. s.	NNE.	2	SW.	1	Beam trawl.
2058	Aug. 30	6.39 p.m.	41.57.30	67.58.70	58	55	.....	41	Bu. m. and s.	ENE.	2	SW.	1	Do.
2059	Aug. 31	5.00 a.m.	42.05.00	66.46.15	56	55	.....	123	Bu. m. and s.	NNE.	4	W.	1.5	Do.
2060	Aug. 31	7.10 a.m.	42.10.00	66.46.15	56	55	.....	115	Gy. s., blk. sp., brk. sh.	NNE.	3	NW. by W.	1.5	Do.
2061	Aug. 31	8.00 a.m.	42.10.00	66.47.45	58	54	40	115	Gy. s., blk. sp., bu. m.	NNE.	3	NE. by N.	1.5	Do.
2062	Aug. 31	10.47 a.m.	42.17.00	66.37.15	64	61	42	150	S. and crs. g.	ENE.	3	SE.	1	Do.
2063	Aug. 31	4.23 p.m.	42.23.00	66.23.00	64	57½	46	141	Crs. s. and g.	N.	2	SE.	1	Rake dredge.
2064	Aug. 31	4.32 p.m.	42.25.40	66.08.35	53	56	.....	122	S. s. g. and brk. sh.	N.	2	SE.	1	Do.
2065	Aug. 31	7.00 p.m.	42.27.00	66.00.45	60	55	44½	80	S. s. g. and g.	NE.	2	ENE.	1.5	Do.
2066	Sept. 1	3.00 a.m.	42.19.40	65.49.30	54	54	43½	65	S. s. g. and g.	NE.	3-4	ENE.	2	Beam trawl.
2067	Sept. 1	7.05 a.m.	42.13.25	65.48.40	56	56	46	122	S. s. g. and g.	NE.	4	ENE.	2	Do.
2068	Sept. 1	10.03 a.m.	42.03.00	65.48.40	60	56	42	131	S. s. g. and c.	ESE.	4	ENE.	1.5	Grapnel dredge.
2069	Sept. 1	1.54 p.m.	41.54.50	65.48.35	61	56½	42	101	S. s. g., p. and c.	NE.	5	E. by N.	1	Bar and tangles.
2070	Sept. 1	2.38 p.m.	41.55.30	65.47.10	61	57	42½	113	P. and c.	E.	5	N.	1	Grapnel dredge.
2071	Sept. 1	4.10 p.m.	41.56.20	65.48.40	61	57	.....	113	P. and c.	ENE.	5	N.	1	Beam trawl.
2072	Sept. 2	6.15 a.m.	41.53.00	65.35.00	70	56	39	858	Gy. m.	S.	3	SE.	2	Do.
2073	Sept. 2	10.41 a.m.	41.54.15	65.39.00	67	58	40	586.5	Gy. s.	NNE.	3	SE.	2	Do.
2074	Sept. 3	6.42 a.m.	41.43.00	65.21.50	71	69	40	309	M. and st.	SW.	5	SSE.	4	Do.
2075	Sept. 3	4.43 a.m.	41.43.00	65.35.00	58	58	39	855	Glob. oz.	NW.	6	SW.	3	Do.
2076	Sept. 3	3.20 a.m.	41.43.00	66.00.50	53	69	.....	906	Bu. m.	NE.	6	SW.	5	Do.
2077	Sept. 4	8.00 a.m.	41.09.40	66.02.20	57	68	39	1,255	Bu. m. and s.	NW.	2	NW.	2	Do.
2078	Sept. 4	1.40 p.m.	41.11.30	66.12.30	60	66	40	499	Gy. m. and s.	W.	2	W.	2	Do.
2079	Sept. 4	4.15 p.m.	41.13.00	66.19.50	60	67½	45	75	Wh. s.	WSW.	2	WSW.	1.5	Do.
2080	Sept. 4	5.10 p.m.	41.13.00	66.21.50	60	67½	46	55	Gy. s.	WSW.	2	WSW.	1.5	Do.
2081	Sept. 4	6.50 p.m.	41.10.20	66.30.20	59	56	46	50	Wh. s., blk. sp.	SW.	1	NW. by W.	1	Do.
2082	Sept. 4	7.41 p.m.	41.09.50	67.01.50	58	55	46½	49	Crs. y. l. s.	SW.	1	NW. by W.	1	Do.
2083	Sept. 5	4.30 a.m.	40.26.40	67.05.15	73	72	40	959	Gy. m.	SW.	2	SSW.	2.5	Do.
2084	Sept. 5	9.09 a.m.	40.16.50	67.05.15	73	73½	40	1,290	Bu. m. and s.	SW.	3	SSW.	4.0	Do.
2085	Sept. 20	6.56 a.m.	40.05.00	70.34.45	67	68	50	70	Bu. m.	E.	3	N. by E.	1.5	Do.
2086	Sept. 20	9.20 a.m.	40.06.05	70.35.00	67	67	52½	69	Bu. m., ky. s.	NE. ½ E.	3	NE. ½ E.	1.5	Do.
2087	Sept. 20	10.30 a.m.	40.06.50	70.34.15	71	67	50	65	Ga. m., wh. s.	E.	3	NNE.	2	Do.

I.—Dredging and trawling record, U. S. Fish Commission steamer *Albatross*, etc.—Continued.

Serial number.	Date.	Hour.	Locality.		Temperatures.			Depth.	Kind of bottom.	Wind.		Drift.		Instrument used.
			Latitude north.	Longitude west.	Air.	Surface.	Bottom.			Direction.	Force.	Direction.	Distance.	
	1883.		° ' "	° ' "	°	°	°	<i>Fathoms.</i>					<i>Miles.</i>	
2088	Sept. 20	12.40 p. m.	39 59 15	70 36 30	68	68	48	Yl. s.	NE. by E.	3	S. by W.	1.5	Beam trawl.	
2089	Sept. 20	3.13 p. m.	39 58 50	70 39 40	76	69	45	Gy. s.	E.	3	N.	1.5	Do.	
2090	Sept. 20	4.40 p. m.	39 59 40	70 41 10	71	68	48½	Gy. s., brk. sh.	ENE.	3	NE.	1.5	Do.	
2091	Sept. 21	5.30 a. m.	40 01 50	70 59 00	68	69	49	Gn. m.	E.	3	N.	2.5	Do.	
2092	Sept. 21	7.50 a. m.	39 58 35	71 00 30	74	67½	45	Gn. m.	E.	3	NE.	2.5	Do.	
2093	Sept. 21	1.12 p. m.	39 42 50	71 01 20	75	69	39	Foraminifera, s. m.	E.	3	N. by W.	5	Do.	
2094	Sept. 21	5.07 p. m.	39 44 30	71 04 00	70	68	38½	Foraminifera, s. m.	NE.	3	NNE.	5	Do.	
2095	Sept. 30	9.02 a. m.	39 29 00	70 58 40	71½	69½	1,022	Glob. oz.	SSW.	5	S.	2	Do.	
2096	Sept. 30	2.07 p. m.	39 22 20	70 52 20	70	69	37½	Glob. oz.	SSW.	3	SW.	1.5	Do.	
2097	Oct. 1	5.30 a. m.	37 56 20	70 57 30	73	72½	1,917	Glob. oz.	SW.	2	S. ¼ W.	1.5	Do.	
2098	Oct. 1	1.08 p. m.	37 40 30	70 57 30	73	72½	2,221	Glob. oz.	NW.	3	W. by S.	2	Do.	
2099	Oct. 2	5.30 a. m.	37 12 20	69 39 00	71	82	2,919	Glob. oz.	SE.	6	SSW.	2	Do.	
2100	Oct. 3	11.05 a. m.	39 22 60	68 34 30	63	69	37½	Glob. oz.	WNW.	3	E.	2	Do.	
2101	Oct. 3	4.31 p. m.	39 18 30	68 34 00	61	67	37	Glob. oz.	WSW.	3	S.	2	Do.	
2102	Nov. 5	6.53 a. m.	38 44 00	72 38 00	64	62½	39	Glob. oz.	Var.	0-1	SSW.	1.7	Do.	
2103	Nov. 5	11.14 a. m.	38 47 20	72 37 00	67	62	39	Glob. oz.	SSW.	1	SSE.	1.5	Do.	
2104	Nov. 5	3.41 p. m.	38 48 00	72 40 30	67	63	41½	Gn. m.	SSW.	2	S.	0.5	Do.	
2105	Nov. 6	6.06 a. m.	37 50 00	73 03 50	66	63	41	Glob. oz.	SSW.	3	S. by W.	3	Do.	
2106	Nov. 6	Meridian.	37 41 20	73 03 20	66	63	42½	Glob. oz.	SSW.	3	S. by W.	3	Do.	
2107	Nov. 9	8.23 a. m.	35 19 30	75 15 20	71	76	16½	Fne. dk. gy. s., small sh.	W.	3	S.	0.5	Do.	
2108	Nov. 9	11.00 a. m.	35 16 00	75 02 30	76	78½	66	Bu. m., crs. s.	SSW.	3	S. by W.	0.5	Do.	
2109	Nov. 9	1.03 p. m.	35 14 20	74 59 10	74	76	50½	Bu. m.	SSW.	4	S. by W.	1	Do.	
2110	Nov. 9	2.50 p. m.	35 12 10	74 57 15	76	75½	40	Bu. m.	SSW.	4	S. by W.	0.8	Do.	
2111	Nov. 9	5.25 p. m.	35 09 50	74 57 40	75	76	38	Gn. m.	SSW.	4	S.	1.5	Do.	
2112	Nov. 10	8.15 a. m.	35 20 50	75 18 00	70	70	73½	S., blk. sp.	SW.	4	SW.	0.8	Do.	
2113	Nov. 10	10.04 a. m.	35 20 30	75 19 00	72	70	72½	M., blk. s.	SW.	4	SW.	1	Do.	
2114	Nov. 10	11.15 a. m.	35 20 00	75 20 00	73	70	72	M., blk. s.	SW.	4	SW. by S.	0.8	Do.	
2115	Nov. 11	7.54 a. m.	35 49 30	74 34 45	77	78	39	M., fine. s.	SW.	4	S. by W.	1.5	Do.	
2116	Nov. 11	Meridian.	35 45 23	74 31 25	76	77	39	Bu. m., fine. s.	WSW.	4	S.	1.5	Do.	

REPORT OF DREDGINGS OF THE ALBATROSS FOR 1884, BY LIEUT. SEATON SCHROEDER, U. S. N., NAVIGATOR.

During the year 1884 the geographical limits of the cruising of the *Albatross* were the parallels of $8^{\circ} 30'$ and 43° north latitude and the meridians of $61^{\circ} 30'$ and $85^{\circ} 30'$ west longitude. The number of days at sea and the distances run, together with the object of each trip, are given in the following table:

Date.	Object.	Distance.
		<i>Miles.</i>
January 6 to 7	Baltimore to Norfolk	163
January 10 to 17	Sounding trip	1, 417. 5
January 24 to 30	Sounding and dredging trip	660. 2
February 2	Swinging ship	20
February 3 to 11	Sounding and dredging trip	1, 209. 4
February 18 to 26	do	1, 100. 8
February 27 to March 1	do	333. 8
March 12 to 16	do	605. 1
March 22 to 26	do	429. 4
April 2 to 5	do	253
April 9 to 15	do	813. 1
April 29	Key West to Havana, Cuba	100
April 30 to May 7	Sounding and dredging trip	603. 8
May 11 to 17	Sounding trip	1, 279. 5
July 13 to 14	Washington to Norfolk	174
July 20 to 26	Investigating migrations of menhaden and mackerel	651. 7
July 31 to August 8	Dredging trip	486. 4
August 19 to 25	do	429. 2
August 27	Wood's Holl to Newport	42
August 28 to 31	Flagship of Honorable Secretary of the Navy	47
September 1	Newport to Wood's Holl	42
September 6 to 15	Dredging trip	943
September 25 to 29	do	424. 1
October 8 to 9	Wood's Holl to New York	189
October 17 to 23	Dredging trip	797
December 25 to 26	Washington to Norfolk	174
Total, 134 days .....	.....	13, 388

The number of soundings taken during the year was 701, almost all of which were located with sufficient accuracy to be of hydrographic value; of these, 194 were also dredging stations.

During the winter and spring the vessel was employed in hydrographic work for the Navy Department; searching for reported dangers in the West Indies and between there and the Chesapeake; running lines of soundings across the Caribbean Sea and among some of the islands; taking serial temperatures and noting surface currents; making an examination of a part of Savanilla Bay, United States of Colombia, and establishing the longitude of Cape San Antonio light-house, Cuba.

Following is a list of reported dangers over or near which the depths were found in the positions given:

List of reported dangers.

Name.	Latitude north.	Longitude west.	Depth.
	° ' "	° ' "	Fathoms.
Orion Shoal	34 48 45	72 25 00	2,462
Ashton Shoal	33 50 20	71 42 00	2,953
Perseveranza Shoal	31 15 42	67 39 10	2,787
Mourand Shoal	24 35 14	65 13 07	3,006
Leighton Rock	17 39 30	73 22 15	2,490
Loos Shoal	17 48 00	73 34 15	2,369
Breakers	12 54 40	66 11 10	2,768
Vigia	12 10 30	66 11 00	2,707
Georgia Shoal	Many soundings.		(Least) 17
Tribune Shoal	12 11 30	74 27 30	2,057
Powhatan Shoal	11 11 00	75 50 30	1,195
Doubtful	14 53 40	80 20 00	1,151
Sancho Pardo Shoal	Off Cape San Antonio.		Many.
Albatross Shoal	22 49 20	84 15 00	950
Vigia	23 06 00	83 03 45	625
Huntley Shoal	30 46 00	78 35 00	470

The soundings were such as to prove the non-existence of all except the Georgia Bank off the east end of Jamaica, which had been recently searched for by several vessels. It was originally discovered by Capt. John S. Holt, of the American brig *Georgia*, in 1867, who reported 14 fathoms in about latitude $17^{\circ} 46'$ N., longitude $75^{\circ} 45'$ W. An extensive and careful search was made for this, resulting in the discovery of a bank with a least depth of 17 fathoms a little to the southward of the reported position, in latitude $17^{\circ} 36'$ to $17^{\circ} 44'$ N., longitude $75^{\circ} 40'$ to $75^{\circ} 45'$ W. The Navy Department has given it the name of Albatross Bank. This must not be confounded with the Albatross Shoal off the northwestern shore of Cuba, which was reported by the German gunboat of that name and not subsequently found.

One hundred soundings were taken off Cape San Antonio, extending to just beyond the range of the light, with deep water everywhere (up to 1,200 fathoms), and Sancho Pardo Shoal has, in consequence, been expunged from the charts of the Hydrographic Office, Navy Department.

Six lines of soundings were run across the Caribbean Sea, four between the Leeward Islands and the Main, and diagonal lines on and off the coast of the United States of Colombia. The eastern part of the Caribbean Sea is the deepest, the greatest depth being 2,844 fathoms, in latitude $13^{\circ} 25'$ N., longitude $66^{\circ} 25'$ W. Off the Honduras coast, however, still deeper water was found, there being 3,169 fathoms at 60 miles southwest of the Grand Cayman.

An interesting discovery was that of a submarine ridge connecting the islands of Santa Cruz and Puerto Rico, the least depth on which was 578 fathoms and the greatest 900, while on either side was found over 2,000 fathoms.

Aves Islet, 100 miles westward of Guadaloupe, was found to be the summit of a mountain, precipitous on its western slope and extending in a south-southeast direction over 150 miles to the 1,000-fathom curve.

During the summer and autumn of 1884 hydrographic work was merely incidental, as continuous dredging and trawling generally interfered with the correct locating of the stations. Still, a number of the soundings taken were considered plotted with sufficient accuracy to be of hydrographic value. This work was off the United States coast between Cape Hatteras and George's Banks.

Nothing of special interest was definitely ascertained. But in the course of the season it became very evident that in the vicinity of the 40th parallel and the 70th and 71st meridians there is an easterly and a westerly movement of the water, alternating at intervals of apparently about half a day. Circumstances prevented a close examination into this matter, but, as the approximate time of the change of the current was noticed on several occasions to be later each day, it is believed that the phenomenon may be attributed to the influence of the moon, and that probably there may be tidal currents, less pronounced, but as regular there as along shore.

Indications were also found of a pocket running in northward from the 600-fathom line on about the meridian of $70^{\circ} 15'$, differing from the contour lines on existing charts. But, owing to cloudy weather and the impossibility of keeping a good reckoning while trawling, the positions found were not considered sufficiently reliable to warrant making a report to the Hydrographic Office.

Dredging and Trawling Record of the United States Fish Commission steamer Albatross, Season of 1884.

ABBREVIATIONS USED IN THIS TABLE: m., mud; s., sand; g., gravel; co., coral; sh., shells; p., pebbles; sp., specks; c., clay; st., stones; r., rock; bk., black; wh., white; y., yellow; gy., gray; bu., buck; dk., dark; lt., light; gn., green; br., brown; hrd., hard; sft., soft; fine, fine; crs., coarse; brk., broken; lrg., large; sm., small; rky., rocky; stlk., sticky; oz., ooze; for., foraminifera; glob., globigerina; L. B. T., large beam-trawl; S. B. T., small beam-trawl; Tgl. bar, tangle-bar; Bl. Dr., Blake dredge; Sh. Dr., Ship's dredge. Bl. Dr. = D. S. (deep-sea dredge), and Sh. Dr. = M. B. (mud-bag).

Serial No.	Date.	Time.	Positions.		Temperatures.		Depth in fathoms.	Character of bottom.	Wind.		Drift.		Instrument used.
			Latitude N.	Longitude W.	Air.	Surface.	Bottom.		Direction.	Force.	Direction.	Distance.	
	1884.		° ' "	° ' "								Miles.	
2117	Jan. 27	1:58 p.m.	15 24 40	63 31 30	84	78	39.75	yl. m. fine. s.	ENE.	2	NW by W.	2.5	L. B. T.
2118	Jan. 28	8:15 a.m.	13 32 40	62 54 00	76	77	690	gy. m. bk. s.	SE.	2	ENE.	1.7	Do.
2119	Jan. 29	1:07 p.m.	11 47 30	62 14 30	75	77	39.25	yl. m.	NE.	3	SW.	2.5	Do.
2120	Jan. 30	6:30 a.m.	11 07 00	62 14 30	75	76	73	dk. m.	E.	2	N.	0.2	Dr. Tgl.
2121	Feb. 3	6:37 a.m.	10 37 40	61 43 40	77	77	67	dk. slate-col. m.	NW by W.	2			L. B. T.
2122	Feb. 3	7:18 a.m.	10 37 00	61 43 22	77	77	73	dk. slate-col. m.	NW by W.	2			Do.
2123	Feb. 3	8:45 a.m.	10 42 02	61 43 48	78	78	64.5	fine. sh. gn. m.	NE. by N.	2	NW by N.		Do.
2124	Feb. 18	2:03 p.m.	11 34 30	69 03 10	77	74	59.5	yl. m. s. bk. sp.	E. by S.	2	W by S.		Sh. Dr.
2125	Feb. 18	4:31 p.m.	11 43 00	69 03 30	75	74	50.7	yl. m. crs. s. for.	E. by N.	2	NNE.		S. B. T.
2126	Feb. 19	10:11 a.m.	13 17 45	70 01 00	78	77	39.3	gn. m.	ENE.	3	W. S.		Do.
2127	Feb. 25	3:14 p.m.	19 45 00	75 04 00	78	77	639	bu. m.	WSW.	3	E to ENE.		L. B. T.
2128	Feb. 27	10:58 a.m.	19 55 46	75 48 55	77	78	49.5	bu. m. fine. s.	SE.	1	E to ENE.		Tgl. bar.
2129	Feb. 27	12:25 p.m.	19 56 04	75 48 55	77	78	274	gy. m. s. brk. sh.	SE.	1	E to ENE.		Do.
2130	Feb. 27	1:04 p.m.	19 56 25	75 49 49	77	79	79	hrd. crs. s.	SE.	2	E to ENE.		Do.
2131	Feb. 27	2:00 p.m.	19 56 44	75 50 49	78	79	79	yl. m. brk. sh.	SE.	2	E to ENE.		Do.
2132	Feb. 27	3:33 p.m.	19 55 33	75 49 16	78	79	48	wh. s. brk. sh.	SE.	3	E to ENE.		Do.
2133	Feb. 27	4:30 p.m.	19 55 55	75 48 03	79	79	290	hrd. co.	SE.	3	ESE.		Do.
2134	Feb. 27	5:37 p.m.	19 56 08	75 47 07	77	77	254	co. brk. sh.	SE.	3	{ NW by W }		Do.
2135	Feb. 27	6:31 p.m.	19 55 58	75 47 07	77	77	250	co. brk. sh.	SE.	3	{ NW by W }		Do.
2136	Feb. 29	2:04 p.m.	17 43 40	75 38 25	81	78	52	co. brk. sh.	SE.	3	{ NW by W }		Do.
2137	Feb. 29	2:29 p.m.	17 44 50	75 39 20	81	78	47	co. brk. sh.	SE.	3	{ NW by W }		Do.
2138	Feb. 29	5:36 p.m.	17 44 05	75 39 00	78	78	23	co. brk. sh.	SE.	3	{ NW by W }		Do.
2139	Mar. 11	2:56 p.m.	17 52 00	76 45 30	80	79	915	bk. m.	ESE.	4	S. E.		Do.
2140	Mar. 11	7:18 p.m.	17 36 10	76 48 05	80	78	39.7	s.	E.	5	NNE. E.		S. B. T.
2141	Mar. 12	11:29 a.m.	17 25 00	75 58 55	78	77	966	co. s.	E.	5	S. by E. E.		Tgl. bar.
2142	Mar. 23	4:05 p.m.	9 30 15	76 20 30	81	81	42	gn. m. s.	WNW.	2	W. S.		Do.
2143	Mar. 23	5:01 p.m.	9 30 45	76 21 30	80	80	155	gn. m.	NNW.	2	SSW.		Do.
2144	Mar. 25	6:46 a.m.	9 49 00	79 31 30	78	79	896	gn. m. brk. sh.	N.	1			L. B. T.
2145	Apr. 2	10:41 a.m.	9 27 00	79 54 00	80	79	25	gn. m. brk. sh.	NNE.	1			Sh. Dr.
2146	Apr. 2	12:03 p.m.	9 32 00	79 54 30	80	79	34	brk. sh.	NNE.	4			L. B. T.
2147	Apr. 2	12:46 p.m.	9 32 20	79 54 45	80	79	78.5	co.	NNE.	4			Tgl. bar

2148.	Apr. 2	1.39 p.m.	9 85.00	79 55.30	81 79	78 25	130	hvd.	4	NNE.	Do.
2149.	Apr. 4	9.31 a.m.	13 01.30	81 55.00	80 78	39 7	992	yl. m.	3	NE by N.	Do.
2150.	Apr. 9	9.15 a.m.	15 34.45	81 21.10	82 78	45.75	382	wh. cfs. s	3	NNE.	Dr. & Tgl. bar.
2151.	Apr. 10	11.03 a.m.	15 23.39	80 36.00	79 73	40.2	653	yl. or. oz.	3	NNE.	L. E. T.
2152.	Apr. 30	6.05 a.m.	23 m. NW. of Havana light.	71 77	73	49	387	00	1	NE to ENE.	Tgl. bar.
2153.	Apr. 30	7.11 a.m.	23 10 19	82 23 10	74 77	55.8	283	00	2	ESE.	Do.
2154.	Apr. 30	8.08 a.m.	23 10 16	82 22 54	76 77	56.6	310	00	2	ESE.	Do.
2155.	Apr. 30	9.09 a.m.	23 10 21	82 22 44	76 77	57.8	300	00	2	ESE.	Do.
2156.	Apr. 30	10.42 a.m.	23 10 35	82 21 55	78 77	59.8	278	00	3	ESE.	Do.
2157.	Apr. 30	11.40 a.m.	23 10 04	82 21 07	78 77		29	00	3	E by N.	Do.
2158.	Apr. 30	12.07 p.m.	23 10 25	82 20 36	78 77		86	00	3	ENE.	Do.
2159.	Apr. 30	1.05 p.m.	23 10 39	82 20 08	78 77		98	00	3	ENE.	Do.
2160.	Apr. 30	2.04 p.m.	23 10 31	82 20 37	79 77		167	00	3	ENE.	Do.
2161.	Apr. 30	2.48 p.m.	23 10 36	82 20 28	78 78		146	00	4	ENE.	Do.
2162.	Apr. 30	3.36 p.m.	23 10 30	82 20 25	79 78		122	00	4	ENE.	Do.
2163.	Apr. 30	4.24 p.m.	23 10 31	82 20 29	79 78		133	00	4	ENE.	Do.
2164.	May 1	6.21 a.m.	23 10 39	82 20 20	71 77		192	00	2	ESE.	Do.
2165.	May 1	7.19 a.m.	23 10 39	82 20 28	71 77		200	00	2	ESE.	Do.
2166.	May 1	8.27 a.m.	23 10 36	82 20 30	74 77	71.9	196	00	2	ESE.	Do.
2167.	May 1	9.33 a.m.	23 10 40	82 20 30	80 78		101	00	3	ESE.	Do.
2168.	May 1	10.24 a.m.	23 10 36	82 20 26	80 78		122	00	3	ESE.	Do.
2169.	May 1	10.46 a.m.	23 10 28	82 20 27	79 78		78	00	3	ESE.	Do.
2170.	July 20	11.40 a.m.	37 57.00	73 53.30	72 71		155	gy. s.	2	NE.	Do.
2171.	July 20	1.25 p.m.	37 59.30	73 48.40	75 75	39.5	444	gn. m.	2	NNW.	Do.
2172.	July 20	3.45 p.m.	38 01.15	73 44.00	76 76	37	568	gn. m.	2	NNW.	Do.
2173.	July 21	6.26 a.m.	37 57.00	72 34.00	70 70		1,000	glob. oz.	1	NNW.	Do.
2174.	July 21	2.59 p.m.	38 15.00	72 03.00	73 76		1,594	gy. m.	4	W.	Do.
2175.	July 22	9.03 a.m.	39 33.00	72 18.30	69 68	40.5	452	gn. m.	4	WSW.	Do.
2176.	July 22	12.34 p.m.	39 32.30	72 31.30	71 68	41	302	bk. m.	3	WSW.	S. B. T.
2177.	July 22	3.40 p.m.	39 33.40	72 08.45	71 68	52	87	gn. m. s.	3	W by N.	L. B. T.
2178.	July 22	5.16 p.m.	39 30.10	72 05.15	70 68	42.3	229	gn. m. s.	3	WSW.	Do.
2179.	July 23	4.02 a.m.	39 30.10	71 50.00	68 67	39.5	510	bk. m.	4	WSW.	Do.
2180.	July 23	6.48 a.m.	39 23.50	71 49.30	72 68	38.5	523	bk. m.	3	WSW.	Do.
2181.	July 23	9.42 a.m.	39 25.30	71 46.00	73 68	39	693	gy. m. fh. s.	3	WSW.	Do.
2182.	July 23	12.58 p.m.	39 25.30	71 44.00	70 68	39	861	gn. m.	5	SW.	Do.
2183.	Aug. 2	39 57.45	70 56.30	44.5	195		136	gn. m. s.	1	SE.	Do.
2184.	Aug. 2	11.52 a.m.	40 00.15	70 55.30	71 70	48.9	129	gn. m. s.	1	N by E.	Do.
2185.	Aug. 2	2.12 p.m.	40 00.45	70 54.15	74 69	51	353	gn. m. s.	1	NNW.	Do.
2186.	Aug. 2	6.12 p.m.	39 52.15	70 55.30	70 69	39.7	420	gn. m. s.	3	SE.	Do.
2187.	Aug. 3	10.44 a.m.	39 49.30	71 10.00	70 68	42.7	235	gn. m. s.	2	E by S.	Do.
2188.	Aug. 3	1.54 p.m.	39 54.30	71 08.00	73 70		600	gn. m. s.	3	ESE.	Do.
2189.	Aug. 4	4.16 a.m.	39 49.30	70 26.00	71 71	39.7	1,180	glob. oz.	3	WSW.	Do.
2190.	Aug. 4	10.42 a.m.	39 40.00	70 20.15	74 73		961	gn. m.	5	SW.	Do.
2191.	Aug. 4	2.46 p.m.	39 45.30	70 17.00	74 72	38.6	1,060	gy. oz.	4	SW.	Lost trawl.
2192.	Aug. 5	5.45 a.m.	39 46.30	70 14.45	76 72		1,122	gn. m.	5	NNE.	L. B. T.
2193.	Aug. 5	11.04 a.m.	39 44.30	70 10.00	79 73	38.4	1,140	oz.	5	S.	Do.
2194.	Aug. 5	2.54 p.m.	39 43.45	70 07.00	77 74	38.4	1,058	gn. m.	4	S by E.	Do.
2195.	Aug. 5	6.42 p.m.	39 44.00	70 03.00	83 74	38.4	1,430	gn. m.	4	SSW.	Do.
2196.	Aug. 6	4.45 a.m.	39 35.00	69 44.00	74 74	38.3	1,230	gn. m.	3	NNW.	Do.
2197.	Aug. 6	11.24 a.m.	39 56.30	69 43.20	77 74	52.3	84	s. brk. sh.	2	NE.	Do.
2198.	Aug. 6	1.17 p.m.	39 56.30	69 43.20	78 74	52.3	84	s. brk. sh.	2	NE.	Do.
2199.	Aug. 6	2.03 p.m.	39 57.30	69 41.10	77 74		78	gy. s.	2	WSW.	Do.

Dredging and Trawling Record of the United States Fish Commission steamer Albatross, Season of 1884—Continued.

Serial No.	Date.	Time.	Positions.		Temperatures.		Depth in fathoms.	Character of bottom.	Wind.		Drift.		Instrument used.
			Latitude N.	Longitude W.	Air.	Surface.	Bottom.		Direction.	Force.	Direction.	Miles.	
2200.....	1884. Aug. 6	4.38 p.m.	39 53 30	0 73 00	77	74	45	ors. s. bk. sp.	SSW.	2	SE. by E.	2	L. B. T.
2201.....	Aug. 19	6.10 a.m.	39 39 45	71 35 15	69	66	39.5	br. m.	NNE.	5	W.	2	Do.
2202.....	Aug. 19	9.23 a.m.	39 38 00	71 39 45	70	67	39.1	gn. m.	N.	6	WSW.	1.75	Do.
2203.....	Aug. 19	12.29 p.m.	39 34 15	71 41 15	74	74	38.9	gn. m. s.	NNW.	6	WSW.	2.5	Do.
2204.....	Aug. 19	4.32 p.m.	39 30 30	71 44 30	71	74	39.1	br. m.	W.	4	W. by S.	2.5	Do.
2205.....	Aug. 20	4.37 a.m.	39 35 00	71 38 45	68	73	38.1	gy. oz.	NW.	4	W. by S.	1.25	Do.
2206.....	Aug. 20	4.37 a.m.	39 35 00	71 34 30	71	74	38.4	gn. m.	NW.	2	NNE.	1.25	Do.
2207.....	Aug. 20	1.01 p.m.	39 35 33	71 31 45	77	74	38.6	gn. m.	W.	1	NNE.	1.25	Do.
2208.....	Aug. 21	5.02 a.m.	39 34 00	71 16 15	75	74	38.4	gn. m. s.	W by N.	3	WSW.	1.25	Do.
2209.....	Aug. 21	9.42 a.m.	39 33 45	71 18 30	76	74	39.5	gn. m.	WNW.	2	E.	1.25	Do.
2210.....	Aug. 21	1.18 p.m.	39 37 45	71 18 45	75	74	38.1	glob. oz.	SW.	5	S. by W.	1.5	Do.
2211.....	Aug. 21	4.45 p.m.	39 35 00	71 18 00	72	71	40	gn. m.	SSW.	3	E.	2	Do.
2212.....	Aug. 22	4.48 a.m.	39 59 30	70 30 45	73	71	39.5	gn. m.	SSW.	2	S. by W.	1.5	Do.
2213.....	Aug. 22	8.04 a.m.	39 58 30	70 30 00	73	71	38.4	gn. m.	SSW.	2	S.	1.75	Do.
2214.....	Aug. 22	11.30 a.m.	39 57 00	70 32 00	74	74	39.5	gn. m.	SSW.	3	SSW.	1.5	Do.
2215.....	Aug. 22	3.13 p.m.	39 49 15	70 31 45	77	74	.....	lost th.	SSW.	4	S.	1.75	Do.
2216.....	Aug. 22	5.38 p.m.	39 47 00	70 30 30	81	71	39.5	gn. m.	SSW.	2	S.	1.25	Do.
2217.....	Aug. 23	4.49 a.m.	39 47 20	69 34 15	75	73	38.1	gn. m.	SSW.	3	S.	1.25	Do.
2218.....	Aug. 23	10.41 a.m.	39 46 22	69 29 00	73	74	38.8	gn. m.	SW.	2	SE. by S.	1.75	Do.
2219.....	Aug. 23	1.36 p.m.	39 43 30	69 29 00	72	74	38.8	gn. m.	SW.	2	SE. by S.	1.75	Do.
2220.....	Aug. 23	4.18 p.m.	39 43 30	69 23 00	75	74	38.3	gn. m.	SW.	3	SE. by S.	1.5	Do.
2221.....	Sept. 6	9.01 a.m.	39 05 30	70 44 30	77	75	36.9	gy. m.	SW.	3	SW. 1/2 S.	1.25	Do.
2222.....	Sept. 6	2.00 p.m.	39 03 15	70 50 45	74	73	36.9	gy. oz.	WSW.	3	SE.	2	Do.
2223.....	Sept. 6	5.07 a.m.	39 48 30	69 49 30	70	73	36.4	glob. oz.	NW.	3	W.	3.5	Do.
2224.....	Sept. 7	8.31 a.m.	39 16 30	68 21 00	78	79	38.8	glob. oz.	NW.	2	SW. 1/2 S.	3.5	Do.
2225.....	Sept. 9	5.47 a.m.	39 05 30	69 51 45	77	78	36.7	yl. oz.	WSW.	2	SW.	2	Lost trawl.
2226.....	Sept. 10	5.06 a.m.	37 00 00	71 54 00	78	80	36.8	glob. oz.	SW.	3	SSW.	2	L. B. T.
2227.....	Sept. 10	12.24 p.m.	37 55 23	71 55 00	81	82	36.8	glob. oz.	SW.	4	S.	2	Do.
2228.....	Sept. 11	5.10 a.m.	37 25 00	73 06 00	77	77	36.8	br. m.	SW.	3	W. 1/2 N.	2	Do.
2229.....	Sept. 11	4.12 p.m.	37 38 40	73 36 30	79	75	37.7	glob. oz.	SW.	2	W.	1.5	Do.
2230.....	Sept. 12	4.37 a.m.	38 27 00	73 02 00	75	75	36.8	glob. oz.	WSW.	2	NW.	1.5	Do.
2231.....	Sept. 12	2.48 p.m.	38 29 00	73 09 00	77	75	36.8	gy. oz.	W.	3	NNE.	1.5	Do.
2232.....	Sept. 12	4.42 a.m.	38 37 30	73 11 00	72	74	42.8	gn. m.	NNE.	4	NNE.	1.5	Do.
2233.....	Sept. 12	4.16 p.m.	38 36 30	73 06 00	69	73	39.2	gn. m.	NNE.	5	NNE.	1.75	Do.
2234.....	Sept. 13	4.80 a.m.	39 09 00	72 03 15	71	69	38.6	gn. m.	ENE.	3	NE. by N.	1.25	Do.
2235.....	Sept. 13	7.43 a.m.	39 12 00	72 03 30	68	72	38.8	gn. m.	NNE.	4	NE. by E.	1.5	Do.
2236.....	Sept. 13	9.49 a.m.	39 11 00	72 08 30	76	72	39.5	gn. m.	NNE.	4	NNE.	1.25	Do.
2237.....	Sept. 13	11.42 a.m.	39 12 17	72 09 30	70	72	39.5	gn. m.	NNE.	4	SW.	1.25	Do.

Station	Date	Time	Depth	Direction	Wind	Current	State	Remarks
2238	Sept. 13	2.26 p.m.	39 06 00	72 10 00	71 72	38.7	904	gy. m.
2239	Sept. 26	5.05 a.m.	40 38 00	70 29 45	62 61	.....	32	gn. m.
2240	Sept. 26	7.29 a.m.	40 27 30	70 29 15	63 63	.....	44	gn. m.
2241	Sept. 26	9.20 a.m.	40 21 00	70 29 15	63 63	51.4	50	gn. m.
2242	Sept. 26	11.33 a.m.	40 15 30	70 27 00	63 63	51.4	58	gn. m.
2243	Sept. 26	1.13 p.m.	40 10 15	70 26 00	65 64	52.9	67	gn. m.
2244	Sept. 26	3.11 p.m.	40 05 15	70 23 00	66 71	52.9	67	gn. m.
2245	Sept. 26	4.50 p.m.	40 01 15	70 22 00	66 71	50.9	61	gn. m.
2246	Sept. 26	6.42 p.m.	40 03 00	70 20 30	64 71	48.8	122	gn. m.
2247	Sept. 27	4.57 a.m.	40 07 00	69 57 00	61 70	51.9	98	gn. m.
2248	Sept. 27	6.42 a.m.	40 03 00	69 57 00	64 70	52.4	78	gn. m.
2249	Sept. 27	8.24 a.m.	40 11 00	69 52 00	64 70	51.4	53	gn. m.
2250	Sept. 27	10.04 a.m.	40 17 15	69 51 45	63 68	51.4	44	gn. m.
2251	Sept. 27	12.02 p.m.	40 22 17	69 51 30	62 63	50.9	43	gn. m.
2252	Sept. 27	1.46 p.m.	40 28 00	69 51 00	62 63	50.9	33	gn. m.
2253	Sept. 27	3.11 p.m.	40 34 30	69 50 45	61 61	52.9	32	gn. m.
2254	Sept. 27	4.40 p.m.	40 40 30	69 50 30	61 61	54.4	25	gn. m.
2255	Sept. 27	6.10 p.m.	40 46 30	69 50 15	61 60	55.9	18	gn. m.
2256	Sept. 28	7.17 a.m.	40 38 30	69 29 00	62 61	52.9	30	gn. m.
2257	Sept. 28	8.34 a.m.	40 32 30	69 29 00	62 61	51.2	36	gn. m.
2258	Sept. 28	9.56 a.m.	40 26 00	69 29 10	64 61	50.2	41	gn. m.
2259	Sept. 28	11.13 a.m.	40 13 15	69 29 15	68 65	53.9	46	gn. m.
2260	Sept. 28	12.52 p.m.	40 04 00	69 29 30	69 66	53.9	58	gn. m.
2261	Sept. 28	2.51 p.m.	39 54 45	69 29 45	72 67	41.6	250	gn. m.
2262	Sept. 28	1.06 p.m.	37 08 00	74 33 00	67 68	.....	430	gn. m.
2263	Oct. 18	2.37 p.m.	37 07 50	74 34 29	67 68	46.8	167	gn. m.
2264	Oct. 18	3.47 p.m.	37 07 40	74 35 40	65 67	57.9	70	gn. m.
2265	Oct. 19	6.00 a.m.	35 07 00	75 08 30	69 78	62.8	163	gn. m.
2266	Oct. 19	6.39 a.m.	35 08 50	75 07 20	67 79	72.8	68	gn. m.
2267	Oct. 19	7.43 a.m.	35 10 40	75 06 10	67 79	71.3	48	gn. m.
2268	Oct. 19	8.46 a.m.	35 12 30	75 05 00	70 75	76.3	32	gn. m.
2269	Oct. 19	9.40 a.m.	35 14 15	75 07 00	70 75	76.3	26	gn. m.
2270	Oct. 19	10.45 a.m.	35 16 00	75 09 00	70 75	.....	15	gn. m.
2271	Oct. 19	11.57 a.m.	35 20 10	75 14 00	69 75	.....	16	gn. m.
2272	Oct. 19	12.45 p.m.	35 20 30	75 17 30	69 72	72.3	17	gn. m.
2273	Oct. 19	1.22 p.m.	35 20 35	75 18 40	68 71	.....	16	gn. m.
2274	Oct. 19	1.43 p.m.	35 20 40	75 18 40	67 71	.....	15	gn. m.
2275	Oct. 19	2.08 p.m.	35 20 45	75 19 15	67 71	.....	16	gn. m.
2276	Oct. 19	2.21 p.m.	35 20 50	75 19 20	67 71	.....	16	gn. m.
2277	Oct. 19	2.45 p.m.	35 20 55	75 20 55	67 71	.....	16	gn. m.
2278	Oct. 19	3.36 p.m.	35 21 00	75 21 30	67 70	.....	16	gn. m.
2279	Oct. 19	4.15 p.m.	35 21 05	75 22 05	67 70	.....	16	gn. m.
2280	Oct. 19	4.35 p.m.	35 21 10	75 22 40	68 70	.....	14	gn. m.
2281	Oct. 19	5.13 p.m.	35 21 15	75 23 15	68 70	.....	14	gn. m.
2282	Oct. 19	5.41 p.m.	35 21 20	75 23 50	67 70	.....	13	gn. m.
2283	Oct. 19	6.09 p.m.	35 21 25	75 24 25	67 70	.....	13	gn. m.
2284	Oct. 19	6.40 p.m.	35 21 30	75 25 00	67 70	.....	11	gn. m.
2285	Oct. 19	7.13 p.m.	35 21 30	75 25 00	68 69	.....	7	gn. m.
2286	Oct. 20	6.15 a.m.	35 22 30	75 26 00	68 69	.....	7	gn. m.
2287	Oct. 20	6.45 a.m.	35 22 40	75 26 30	68 69	.....	7	gn. m.
2288	Oct. 20	7.15 a.m.	35 22 50	75 27 00	68 69	.....	7	gn. m.
2289	Oct. 20	7.45 a.m.	35 23 00	75 27 30	68 69	.....	7	gn. m.

Dredging and Trawling Record of the United States Fish Commission steamer Albatross, Season of 1884—Continued.

Serial No.	Date.	Time.	Positions.		Temperatures.			Depth in fathoms.	Character of bottom.	Wind.		Drift.		Instruments used.
			Latitude N.	Longitude W.	Air.	Surface.	Bottom.			Direction.	Force.	Direction.	Distance.	
2290.....	1884. Oct. 20	7.45 a. m.	35 23 00	75 24 30	70	69	.....	9½	s. brk. sh.	ESE.	2	ENE.	.5	L. B. T.
2291.....	Oct. 20	8.45 a. m.	35 25 30	75 20 30	70	69	.....	15	gy. s. brk. sh.	ESE.	2	ENE.	.5	Do.
2292.....	Oct. 20	9.32 a. m.	35 27 20	75 16 30	72	70	.....	17	gy. s. brk. sh.	ESE.	2	E. by N.	.5	Do.
2293.....	Oct. 20	10.25 a. m.	35 29 10	75 12 30	71	71	.....	18	crs. s. bk. sp.	ESE.	2	E. by N.	.5	Do.
2294.....	Oct. 20	11.18 a. m.	35 31 00	75 08 30	73	71	.....	19	crs. gy. s.	ESE.	2	E. by N.	.5	Do.
2295.....	Oct. 20	12.05 p. m.	35 32 41	75 04 30	76	73	.....	22	crs. gy. s.	ESE.	2	E. by N.	.5	Do.
2296.....	Oct. 20	1.15 p. m.	35 35 20	74 58 45	75	71	.....	27	crs. gy. s.	SE.	2	E. by N.	.5	Do.
2297.....	Oct. 20	2.18 p. m.	35 38 00	74 53 40	75	73	.....	49	bk. m. brk. sh.	SE.	1	E. by N.	.75	Do.
2298.....	Oct. 20	2.55 p. m.	35 39 00	74 52 00	74	73	.....	80	bk. m. brk. sh.	SE.	1	E. by N.	.75	Do.
2299.....	Oct. 20	3.50 p. m.	35 40 00	74 51 30	74	73	.....	296	bk. m.	SE.	1	E. by N.	.75	Do.
2300.....	Oct. 20	5.20 p. m.	35 41 30	74 48 30	71	71	.....	671	bk. m.	SE.	1	E. by N.	1	Do.
2301.....	Oct. 21	6.10 a. m.	35 11 30	75 05 00	73	77	75	53	crs. s. bk. sp.	SE.	1	NNE.	.5	Tgl. bar.
2302.....	Oct. 21	6.45 a. m.	35 14 00	75 03 00	74	77	71.4	49	s. oo.	ESE.	2	NE.	.25	Do.
2303.....	Oct. 21	7.11 a. m.	35 17 00	75 01 00	74	77	.....	41	fine gy. & bk. s.	ESE.	2	NE.	.25	S. B. T.
2304.....	Oct. 21	7.40 a. m.	35 19 00	74 58 00	74	77	.....	37	fine gy. & bk. s.	ESE.	2	E.	.5	Do.
2305.....	Oct. 21	8.36 a. m.	35 23 00	74 51 30	77	79	66.2	53	fine gy. & bk. s.	ESE.	2	E.	.5	Do.
2306.....	Oct. 21	11.00 a. m.	35 21 30	74 52 00	76	79	41.7	392	gy. m.	ESE.	2	E.	.5	L. B. T.
2307.....	Oct. 21	4.11 p. m.	35 42 00	74 54 30	76	70	57.3	43	gy. & bk. s.	ESE.	2	NE.	1	Do.
2308.....	Oct. 21	5.17 p. m.	35 43 00	74 53 30	72	71	.....	45	gy. & bk. s.	SE.	1	NE.	1	Do.
2309.....	Oct. 21	6.08 p. m.	35 43 30	74 52 00	73	71	.....	56	gy. s. brk. sh.	SE.	1	NE.	.5	Do.
2310.....	Oct. 21	6.59 p. m.	35 44 00	74 51 00	76	71	.....	132	bk. m. fine s.	SE.	1	NE.	.5	Do.

Record of dredgings and trawlings of the U. S. Fish Commission steamer Albatross, during the year ending December 31, 1885.

Serial number.	Date.	Time.	Position.		Temperature.		Depth.	Character of bottom.	Wind.		Drift.		Instrument used.
			Lat. N.	Long. W.	Air.	Surface.			Direction.	Force.	Direction.	Distance.	
	1885.						<i>Fath.</i>					<i>Miles.</i>	
2311	Jan. 5	9.47 a. m.	32 55 00	77 54 00	69	72	59.1	crs. S. bk. Sp.	SE.	3			L. B. T.
2312	Jan. 5	10.48 a. m.	32 54 00	77 53 30	69	73	57.8	crs. S. bk. Sp.	ESE.	3			L. B. T.
2313	Jan. 5	12.17 p. m.	32 53 00	77 53 00	69	73	57.2	crs. S. bk. Sp. brk. Su.	ESE.	3			L. B. T.
2314	Jan. 5	3.06 p. m.	32 43 00	77 51 00	70	69	47.4	crs. S. bk. Sp. brk. Su.	SSE.	4			L. B. T.
2315	Jan. 5	2.17 p. m.	32 46 00	81 48 15	77	75	37	Co	ESE.	5			L. B. T.
2316	Jan. 15	3.21 p. m.	24 25 30	81 47 45	77	75	74	Co	ESE.	5			L. B. T.
2317	Jan. 15	4.22 p. m.	24 25 30	81 46 45	77	75	45	Co	ESE.	5			L. B. T.
2318	Jan. 15	5.00 p. m.	24 25 45	81 46 00	77	75	75	Co	ESE.	5			L. B. T.
2319	Jan. 17	6.45 a. m.	23 10 37	82 20 05	71	76	143	gy. Co	ESE.	1			T. gls.
2320	Jan. 17	7.25 a. m.	23 10 39	82 18 48	72	76	130	fine. Co	ESE.	1			T. gls.
2321	Jan. 17	7.58 a. m.	23 10 54	82 18 00	74	77	230	fine. gy. S.	ESE.	1			T. gls.
2322	Jan. 17	8.53 a. m.	23 10 54	82 17 45	75	77	115	Co	ESE.	1			T. gls.
2323	Jan. 17	10.04 a. m.	23 10 51	82 19 03	78	78	163	wh. br. Co	ESE.	2			T. gls.
2324	Jan. 17	11.17 a. m.	23 10 25	82 20 24	78	78	83	Co	ESE.	2			T. gls.
2325	Jan. 17	11.39 a. m.	23 10 48	82 19 54	78	78	170	lt. br. Co	ESE.	2			T. gls.
2326	Jan. 17	12.15 p. m.	23 11 45	82 18 54	79	78	182	fine. br. S.	ESE.	2			T. gls.
2327	Jan. 17	12.53 p. m.	23 11 03	82 19 15	81	75	58	fine. gy. Co	W.	1			T. gls.
2328	Jan. 17	2.11 p. m.	23 11 03	82 18 45	81	75	118	wh. Co	W.	1			T. gls.
2329	Jan. 17	2.45 p. m.	23 10 48	82 19 15	81	75	121	fine. gy. Co	W.	2			T. gls.
2330	Jan. 17	3.50 p. m.	23 10 31	82 19 55	80	75	114	Co	W.	1			T. gls.
2331	Jan. 17	4.35 p. m.	23 10 38	82 20 05	73	75	156	wh. gy. Co	SSE.	3			T. gls.
2332	Jan. 19	6.48 a. m.	23 10 36	82 19 12	73	75	169	fine. wh. Co.	SSE.	3			T. gls.
2333	Jan. 19	7.20 a. m.	23 10 42	82 18 24	74	75	67	wh. Co	SSE.	3			T. gls.
2334	Jan. 19	8.00 a. m.	23 10 42	82 18 24	74	75	204	Co	NE.	3			T. gls.
2335	Jan. 19	9.00 a. m.	23 10 39	82 20 21	76	77	157	Co	NE.	3			T. gls.
2336	Jan. 19	9.46 a. m.	23 10 39	82 20 21	78	78	157	Co	NE.	3			T. gls.
2337	Jan. 19	11.02 a. m.	23 10 39	82 20 21	78	78	189	Co	NE.	3			T. gls.
2338	Jan. 19	11.53 a. m.	23 10 40	82 20 15	79	78	189	Co	NE.	3			T. gls.
2339	Jan. 19	12.43 p. m.	23 10 40	82 20 15	79	78	191	Co	NE.	3			T. gls.
2340	Jan. 19	1.35 p. m.	23 10 47	82 20 06	79	78	234	Co	NE.	3			T. gls.
2341	Jan. 19	2.11 p. m.	23 10 47	82 19 06	79	78	143	Co	NE.	3			T. gls.
2342	Jan. 19	2.57 p. m.	23 10 39	82 20 21	78	78	201	Co	NE.	3			T. gls.
2343	Jan. 19	3.32 p. m.	23 11 35	82 19 25	78	78	279	fine. Co	NE.	3			T. gls.
2344	Jan. 19	4.40 p. m.	23 10 39	82 20 21	78	78	199	br. Co	NE.	3			T. gls.
2345	Jan. 20	12.36 p. m.	23 10 40	82 20 15	84	78	184	fine. gy. wh. Co	E.	4			T. gls.
2346	Jan. 20	1.24 p. m.	23 10 39	82 20 21	83	78	200	Co	E.	4			T. gls.
2347	Jan. 20	2.11 p. m.	23 10 39	82 20 21	82	78	216	Co	E.	4			T. gls.
2348	Jan. 20	3.04 p. m.	23 10 39	82 20 21	82	78	211	Co	E.	4			T. gls.

Record of dredgings and trawlings of the U. S. Fish Commission steamer Albatross, etc.—Continued.

Serial number.	Date.	Time.	Position.		Temperature.		Depth.	Character of bottom.	Wind.		Drift.		Instrument used.
			Lat. N.	Long. W.	Air.	Surface.	Bottom.		Direction.	Force.	Direction.	Miles.	
2349	1885.	3.51 p. m.	23 10 40	82 20 15	82	78	o	Fath.	E.	4			Tgls.
2350	Jan. 20	4.37 p. m.	23 10 39	82 20 15	81	78	...	182	E.	3			S. B. T.
2351	Jan. 20	9.02 a. m.	22 41 00	84 16 30	78	77	...	213	SSE.	3			L. B. T.
2352	Jan. 21	11.13 a. m.	22 35 00	84 23 00	79	77	45	436	Variable.	0-1			L. B. T.
2353	Jan. 21	9.23 a. m.	20 59 00	86 23 45	79	79	62.8	167	NE.	1			Tgls.
2354	Jan. 22	10.17 a. m.	20 59 30	86 23 45	80	78	...	130	NE.	1			S. B. T.
2355	Jan. 22	11.28 a. m.	20 56 48	86 27 00	83	78	...	399	NE.	2			Tgls.
2356	Jan. 22	1.29 p. m.	20 18 50	87 03 00	84	78	...	137	ESE.	3			S. B. T.
2357	Jan. 29	2.07 p. m.	20 19 10	87 03 10	82	78	...	178	ESE.	4			Tgls.
2358	Jan. 29	2.57 p. m.	20 19 00	87 03 30	81	78	...	222	ESE.	4			S. B. T.
2359	Jan. 29	4.07 p. m.	20 19 10	87 03 30	84	78	50.8	231	ESE.	4			Tgls.
2360	Jan. 30	7.42 a. m.	22 08 30	86 49 00	79	78	...	26	SE.	3			S. B. T.
2361	Jan. 30	8.45 a. m.	22 08 15	86 51 15	80	78	...	25	SE.	3			Tgls.
2362	Jan. 30	9.18 a. m.	22 08 30	86 53 30	79	78	...	25	SE.	3			S. B. T.
2363	Jan. 30	10.38 a. m.	22 07 30	87 06 00	78	77	...	21	SE.	3			S. B. T.
2364	Jan. 30	11.37 a. m.	22 08 40	87 06 00	79	77	...	22	SE.	3			S. B. T.
2365	Jan. 30	3.00 p. m.	22 18 00	87 04 00	79	77	...	24	SE.	2			S. B. T.
2366	Jan. 30	4.52 p. m.	22 28 00	87 02 00	77	76	...	27	SE.	2			S. B. T.
2367	Jan. 30	6.32 p. m.	22 38 00	87 00 00	75	76	...	124	Calm.	0			S. B. T.
2368	Feb. 7	12.11 p. m.	29 15 00	85 32 00	60	64	...	28	SE.	2			Tgls.
2369	Feb. 7	12.46 p. m.	29 16 30	85 32 00	60	64	...	26	ers. gy. S. brk. Sh.	3			L. B. T.
2370	Feb. 7	1.16 p. m.	29 18 15	85 32 00	60	64	...	25	ers. gy. S. brk. Sh.	3			L. B. T.
2371	Feb. 7	2.16 p. m.	29 17 00	85 30 45	65	66	...	26	ers. gy. S. brk. Sh.	3			L. B. T.
2372	Feb. 7	2.47 p. m.	29 15 30	85 29 30	64	64	...	25	gy. S. brk. Sh.	3			L. B. T.
2373	Feb. 7	3.27 p. m.	29 14 00	85 29 15	64	64	...	27	Co.	3			L. B. T.
2374	Feb. 7	4.27 p. m.	29 11 30	85 29 00	63	65	...	26	Co.	3			L. B. T.
2375	Feb. 7	5.15 p. m.	29 10 00	85 31 00	62	65	...	30	S. G. brk. Sh.	4			L. B. T.
2376	Feb. 11	1.43 p. m.	28 03 15	88 16 00	50	62	46.5	324	S. G. brk. Sp. brk. Sh.	4			L. B. T.
2377	Feb. 11	3.44 p. m.	29 07 30	88 08 00	50	63	67	210	gy. M.	4			L. B. T.
2378	Feb. 11	5.40 p. m.	29 14 30	88 09 30	50	63	...	68	gy. M.	4			L. B. T.
2379	Mar. 2	10.43 a. m.	28 02 15	87 43 00	60	66	...	1,467	yl. Oz.	6			L. B. T.
2380	Mar. 2	5.40 a. m.	28 05 00	87 43 45	60	69	40.1	1,430	br. M.	3			L. B. T.
2381	Mar. 3	3.59 p. m.	28 05 00	87 56 15	59	69	...	1,330	lt. br. M.	2			L. B. T.
2382	Mar. 3	5.37 a. m.	28 19 45	88 01 30	59	62	39.6	1,255	gy. M.	1			L. B. T.
2383	Mar. 3	10.23 a. m.	28 32 00	88 06 00	62	69	...	1,181	br. gn. M.	2			L. B. T.
2384	Mar. 3	2.59 p. m.	28 45 00	88 15 30	70	67	39.6	1,940	br. gy. M.	2			L. B. T.
2385	Mar. 3	6.37 p. m.	28 51 06	88 18 00	68	67	40.1	730	gy. M.	2			L. B. T.
2386	Mar. 4	5.36 a. m.	29 15 00	88 06 00	62	67	61.8	60	bu. M.	1			L. B. T.

Station	Date	Time	Depth	Direction	Current	Wind	Weather	State	Remarks
2387	Mar. 4	7.46 a. m.	29 24 00	88 04 00	61	61	S. G. brk. Sh.	NE.	L. B. T.
2388	Mar. 4	9.45 a. m.	29 24 30	88 01 00	61	61	yl. S. bk. Sp.	NE.	L. B. T.
2389	Mar. 4	10.56 a. m.	29 28 00	87 56 00	64	62	gy. S. brk. Sh.	NE.	L. B. T.
2390	Mar. 4	12.48 p. m.	29 27 30	87 48 30	62	62	crs. S. bk. Sp. Sh.	NE.	L. B. T.
2391	Mar. 12	2.03 p. m.	29 32 00	87 45 00	61	59	gy. S. bk. Sp.	ENE.	L. B. T.
2392	Mar. 12	5.27 a. m.	28 47 30	87 27 00	66	62	br. gy. M.	SW.	L. B. T.
2393	Mar. 13	9.37 a. m.	28 43 00	87 14 30	70	64	lt. gy. M.	NE.	L. B. T.
2394	Mar. 13	1.35 p. m.	28 36 15	86 50 00	72	66	gn. M.	WSW.	L. B. T.
2395	Mar. 13	4.31 p. m.	28 36 00	86 48 00	68	65	gy. M.	WSW.	L. B. T.
2396	Mar. 13	6.09 p. m.	28 42 00	86 36 00	64	65	gy. M.	NE.	L. B. T.
2397	Mar. 14	5.32 a. m.	28 45 00	86 26 00	64	67	gy. M.	NE.	L. B. T.
2398	Mar. 14	8.24 a. m.	28 44 00	86 18 00	70	68	gy. M.	NE.	L. B. T.
2399	Mar. 14	10.52 a. m.	28 41 00	86 07 00	71	67	gy. M.	Caln.	L. B. T.
2400	Mar. 14	1.23 p. m.	28 38 30	85 52 30	73	69	gn. M. brk. Sh.	Caln.	L. B. T.
2401	Mar. 14	4.01 p. m.	28 36 00	85 33 30	65	63	lt. gy. M.	Caln.	L. B. T.
2402	Mar. 15	5.30 a. m.	28 42 30	85 29 00	67	65	gy. S.	SW.	L. B. T.
2403	Mar. 15	7.45 a. m.	28 44 00	85 16 00	68	66	gy. S.	SW.	L. B. T.
2404	Mar. 15	9.39 a. m.	28 45 00	85 02 00	68	68	gy. S. brk. Co.	ESE.	L. B. T.
2405	Mar. 15	11.21 a. m.	28 46 00	84 49 00	67	64	crs. S. Co.	ESE.	L. B. T.
2406	Mar. 15	1.14 p. m.	28 47 30	84 37 00	64	63	Co. brk. Sh.	SE.	L. B. T.
2407	Mar. 15	9.22 a. m.	28 28 00	84 25 00	60	64	Co.	NE.	L. B. T.
2408	Mar. 16	9.22 a. m.	27 04 00	83 21 15	67	66	crs. gy. S. brk. Sh.	W.	L. B. T.
2409	Mar. 18	1.12 p. m.	26 47 30	83 25 15	67	66	me. wh. S. bk. Sp. brk. Sh.	WNW.	L. B. T.
2410	Mar. 18	3.32 p. m.	26 33 30	83 15 30	69	67	me. wh. S. bk. Sp.	NW.	L. B. T.
2411	Mar. 18	6.21 p. m.	26 33 30	83 08 45	62	66	me. gy. S. bk. Sp. brk. Sh.	NW.	L. B. T.
2412	Mar. 19	6.30 a. m.	26 18 30	83 08 45	62	66	me. S. bk. Sp. brk. Sh.	NW.	L. B. T.
2413	Mar. 19	10.04 a. m.	26 00 00	82 57 30	68	66	me. wh. S. brk. Sh.	NW.	L. B. T.
2414	Mar. 19	6.11 p. m.	25 04 30	82 59 15	67	69	me. wh. S. brk. Sh.	ENE.	L. B. T.
2415	Apr. 1	5.31 a. m.	30 44 00	79 26 00	70	74	Co. crs. S. Sh. For	ENE.	L. B. T.
2416	Apr. 1	12.01 p. m.	31 26 00	79 07 00	70	74	Co. brk. Sh.	ENE.	L. B. T.
2417	Apr. 2	12.13 p. m.	33 18 30	77 07 00	69	67	me. gy. S.	ESE.	L. B. T.
2418	Apr. 2	12.54 p. m.	33 20 00	77 05 00	69	67	me. gy. S.	ESE.	L. B. T.
2419	Apr. 2	5.25 p. m.	33 34 00	76 40 30	69	72	me. gy. S. bk. Sp.	ESE.	L. B. T.
2420	Apr. 5	6.20 p. m.	37 07 30	74 31 40	50	48	bk. S. M. G.	S. by E.	L. B. T.
2421	June 3	5.40 a. m.	37 07 30	74 31 40	61	61	me. gy. S. P.	NE.	L. B. T.
2422	June 3	9.55 a. m.	37 08 30	74 33 30	66	63	crs. gy. S. bk. Sp. brk. Sh.	E.	L. B. T.
2423	June 3	3.11 p. m.	37 10 15	74 32 00	65	67	gn. M. me. S.	ENE.	L. B. T.
2424	June 4	4.30 a. m.	36 41 57	74 42 15	69	67	bk. M.	ENE.	L. B. T.
2425	June 4	11.30 a. m.	36 20 24	74 46 30	72	69	dk. gy. M. me. S.	SSW.	L. B. T.
2426	June 4	4.49 p. m.	36 01 30	74 47 30	77	71	crs. gy. bk. S. brk. Sh.	S.	L. B. T.
2427	June 23	6.00 a. m.	42 46 00	51 00 00	49	47	hrd.	S.	L. B. T.
2428	June 23	8.18 a. m.	42 48 00	50 55 30	48	48	gn. M.	S.	L. B. T.
2429	June 23	12.04 p. m.	42 55 30	50 51 00	51	45	gy. M.	S.	L. B. T.
2430	June 23	3.05 p. m.	43 08 30	50 50 00	51	46	gn. S. P.	S.	L. B. T.
2431	June 23	4.24 p. m.	43 00 00	50 47 30	51	46	yl. S. bk. Sp.	S.	L. B. T.
2432	June 23	5.28 p. m.	43 04 00	50 45 00	51	47	me. gy. S.	S.	L. B. T.
2433	June 23	6.05 p. m.	43 05 00	50 43 00	52	48	gn. S.	SSW.	L. B. T.
2434	June 23	7.20 p. m.	43 08 00	50 40 00	54	48	bk. M.	SW.	L. B. T.
2435	June 23	8.13 p. m.	43 12 00	50 38 45	54	48	bk. M.	SW.	L. B. T.
2436	June 24	4.22 a. m.	43 36 00	50 06 30	53	49	wh. S. bk. Sp. brk. Sh.	SW.	L. B. T.
2437	June 24	5.04 a. m.	43 36 00	50 05 00	53	49	crs. brk. Sp. brk. Sh.	SW.	L. B. T.
2438	June 24	5.40 a. m.	43 36 00	50 03 30	54	48	gn. S. bk. Sp. brk. Sh.	SW.	L. B. T.

Lake dredge.

Record of dredgings and trawlings of the U. S. Fish Commission steamer Albatross, etc.—Continued.

Serial number.	Date.	Time.	Position		Temperature.		Depth.	Character of bottom.	Wind.		Drift.		Instrument used.
			Lat. N.	Long. W.	Air.	Surface.	Bottom.		Direction.	Force.	Direction.	Distance.	
2439	1885.												
June 24	6.50 a. m.	43 37 00	49 56 30	° ' "	°	°	Fath.	wh. S. bk. Sp.	SW.	5	ESE.	1	L. B. T.
June 24	7.55 a. m.	43 38 00	49 30 00	44 48	37.8	°	36	fine, wh. S. bk. Sp.	SW.	5	ESE.	1	L. B. T.
June 25	5.05 a. m.	45 27 00	49 42 00	45 43	38.3	°	33	wh. S. bk. Sh.	W.	5	N. by E.	1.50	L. B. T.
June 25	6.42 a. m.	45 33 00	49 43 00	46 44	33.2	°	34	wh. S. bk. Sh.	W.	3	NNE.	1	L. B. T.
June 25	8.47 a. m.	45 44 00	49 45 00	46 46	34.9	°	35	wh. S. bk. Sh.	W.	3	NNE.	1	L. B. T.
June 25	11.21 a. m.	45 59 00	49 45 00	45 49	34.4	°	39	wh. S. bk. Sh.	W.	3	NNE.	1	L. B. T.
June 25	12.54 p. m.	46 09 00	49 43 00	47 44	33.5	°	39	brk. Sh.	SW.	3	NNE.	1	L. B. T.
June 25	2.21 p. m.	46 20 00	49 52 00	48 43	35.3	°	40	brk. Sh.	SW.	3	NNE.	1	L. B. T.
June 25	2.55 p. m.	46 26 00	49 42 00	48 43	34.8	°	39	brk. Sh.	WSW.	3	NNE.	1	L. B. T.
June 25	4.40 p. m.	46 28 00	49 30 00	48 43	33.9	°	40	S. G.	WSW.	3	NNE.	1	L. B. T.
June 25	7.03 p. m.	46 57 00	49 50 30	46 42	33.0	°	39	brk. Sh.	SW.	3	NNW.	1	L. B. T.
June 25	8.33 p. m.	46 58 00	50 02 30	45 42	31.0	°	44	P. bk. Sh.	SSW.	4	NNW.	1.50	L. B. T.
June 26	4.19 a. m.	47 04 00	50 34 00	41 40	23.7	°	67	S. Sh.	SSW.	3	NW. by N.	1	L. B. T.
June 26	6.14 a. m.	47 04 00	50 48 00	51 40	23.7	°	89	fine, gn. S.	SW.	3	NNW.	1	L. B. T.
June 26	8.02 a. m.	47 10 00	51 02 00	48 41	23.7	°	82	gn. M. fine. S.	WSW.	3	NNW.	1	L. B. T.
June 26	10.17 a. m.	47 16 00	51 16 00	46 42	23.7	°	74	fine, gn. S.	SW.	3	NNW.	1	L. B. T.
June 26	12.25 p. m.	47 21 00	51 38 30	45 43	30.0	°	81	br. S.	SW.	2	S. by E.	1	L. B. T.
June 26	8.00 a. m.	47 29 00	52 18 00	47 46	29.5	°	86	gy. S.	SW.	2	S. by E.	1	Bl. Dr.
June 26	10.48 a. m.	47 13 00	52 24 00	48 47	29.5	°	89	S. gn. M.	SSE.	2	S. by W.	1	Bl. Dr.
July 2	2.35 p. m.	46 48 30	52 34 00	50 48	29.5	°	88	crs. gy. S.	SSW.	3	S.	1	Bl. Dr.
July 2	6.10 p. m.	46 23 00	52 45 00	50 49	29.5	°	67	gy. S. Sh.	WSW.	1	WSW.	.50	Bl. Dr.
July 3	4.45 a. m.	45 50 00	54 06 00	50 47	30.0	°	59	fine, S. bk. Sp.	WSW.	1	W.	.50	Sh. Dr.
July 3	6.03 a. m.	45 47 00	54 13 30	54 48	30.0	°	41	wh. S. bk. Sp.	WSW.	2	W.	.75	Bl. Dr.
July 3	7.18 a. m.	45 45 30	54 20 30	52 48	30.0	°	45	brk. Sh. bk. Sp.	WSW.	2	W.	.75	Sh. Dr.
July 3	8.30 a. m.	45 44 00	54 27 00	51 50	30.0	°	42	wh. bk. S. bk. Sh.	WSW.	2	S.	.75	Sh. Dr.
July 3	10.14 a. m.	45 40 00	54 41 00	52 47	32.0	°	67	bk. gy. S.	SSW.	2	SSW.	.75	Sh. Dr.
July 3	12.15 p. m.	45 35 00	55 01 00	52 48	30.0	°	67	Co.	SSW.	2	S. by W.	.75	Bl. Dr.
July 3	5.31 p. m.	45 29 00	55 24 00	54 53	30.0	°	38	fine, wh. S. bk. Sp.	SW.	1	SSW.	.50	Bl. Dr.
July 3	6.46 p. m.	45 23 00	55 41 00	55 52	33.8	°	42	fine, bk. S.	SW.	1	S. by W.	.50	Bl. Dr.
July 3	7.45 p. m.	45 11 30	55 51 30	57 54	40.5	°	201	gn. M.	SW.	1	ESE.	1.50	L. B. T.
July 3	4.29 a. m.	44 58 37	56 20 45	55 54	40.2	°	224	gy. M. S.	S.	1	ESE.	1.50	L. B. T.
July 4	7.37 a. m.	44 47 00	56 33 45	56 54	40.2	°	218	gy. M. S.	S. by E.	1	SW. by W.	1.50	L. B. T.
July 4	10.31 a. m.	44 34 00	56 41 45	56 53	40.0	°	137	crs. S. G.	S.	3	NW.	.50	Tgls. with grapnels.
July 4	4.30 p. m.	44 27 30	57 10 45	59 53	40.0	°	219	crs. S. bk. Sh.	SW.	2	NNW.	.50	Tgls. with grapnels.
July 4	5.17 p. m.	44 27 15	57 10 00	58 53	40.0	°							

Record of dredgings and trawlings of the U. S. Fish Commission steamer *Albatross*, etc.—Continued.

Serial number.	Date.	Time.	Position.		Temperature.		Depth.	Character of bottom.	Wind.		Drift.		Instrument used.
			Lat. N.	Long. W.	Air.	Bottom.			Direction.	Force.	Direction.	Distance.	
2323	1885.	4.26 a. m.	41 48 30	70 44 30	59	°	Fath.	S. G. St.	NNW.	2	W.	.25	Sh. Dc.
2324	July 13	5.14 a. m.	41 48 30	70 44 30	60	°	111	S. G. St.	E. N. E.	1	W. S. W.	.25	Sh. Dc.
2325	July 13	5.54 a. m.	41 48 30	70 44 30	60	°	85	S. G. brk. Sh.	E.	1	E. by N.	.25	Sh. Dc.
2326	July 13	8.49 a. m.	41 49 00	70 43 30	62	°	72	P.	N. E.	1	N. E. by E.	.50	Sh. Dc.
2327	July 13	1.30 p. m.	41 40 45	70 45 30	66	°	121	S. G.	(*)	1	(*)	1	(*)
2328	July 13	1.30 p. m.	41 59 00	70 45 30	66	°	117	br. S.	(*)	1	WSW.	1	L. B. T.
2329	July 14	6.29 p. m.	41 47 00	70 37 30	78	°	677	br. S.	SE.	1	SW. by S.	1	L. B. T.
2330	July 14	9.03 a. m.	41 03 30	70 38 40	66	°	662	gy. M.	SE.	1	SW. by W.	1	L. B. T.
2331	July 11	1.04 p. m.	40 52 00	70 38 40	70	°	956	gy. Oz.	SE.	1	SW. by W.	1	L. B. T.
2332	July 14	5.57 p. m.	40 42 00	70 38 40	72	°	852	gy. M.	SE.	2	WSW.	1	L. B. T.
2333	July 15	4.34 a. m.	40 34 30	70 38 7	75	°	705	gy. M.	SE.	2	WSW.	1	L. B. T.
2334	July 15	9.22 a. m.	40 16 30	70 26 15	68	°	828	br. Oz.	NNW.	3	NNW.	1	L. B. T.
2335	July 15	1.03 p. m.	40 01 00	70 29 15	66	°	1,234	gy. Oz.	NNW.	8	NNW.	1	L. B. T.
2336	Aug. 7	5.46 a. m.	39 56 15	70 47 30	69	°	1,149	gn. M. fine S.	NNW.	1	NNW.	1.50	L. B. T.
2337	Aug. 7	6.53 a. m.	39 56 45	70 50 30	71	°	157	gn. M. fine S.	N.	1	W.	1	L. B. T.
2338	Aug. 7	7.48 a. m.	39 57 30	70 51 15	71	°	156	gn. M. fine S.	NE.	1	NW. by N.	1	L. B. T.
2339	Aug. 7	8.57 a. m.	39 59 45	70 53 00	71	°	130	gn. M. fine S.	NE.	1	N.	1	L. B. T.
2340	Aug. 7	11.20 a. m.	39 58 20	70 52 00	72	°	144	gn. S.	NE.	1	N.	1	L. B. T.
2341	Aug. 7	3.00 p. m.	39 57 45	70 50 30	73	°	134	gn. S. brk. Sh.	NE.	1	N. by W.	1	L. B. T.
2342	Aug. 7	3.00 p. m.	40 00 15	70 42 30	73	°	129	S. brk. Sh.	NE.	2	NNW.	1	L. B. T.
2343	Aug. 7	4.27 p. m.	39 58 15	70 42 30	72	°	166	gn. S. brk. Sh.	NE. by E.	2	N.	1	L. B. T.
2344	Aug. 8	7.31 a. m.	40 01 45	70 24 00	70	°	131	gn. S. bk. Sp.	ENE.	3	N.	.50	L. B. T.
2345	Aug. 8	6.19 p. m.	40 01 45	70 23 45	70	°	142	gn. S. bk. Sp.	ENE.	3	N.	.50	L. B. T.
2346	Aug. 8	12.47 p. m.	39 53 30	70 17 30	73	°	538	gn. M.	ENE.	4	NW. by W.	1.50	L. B. T.
2347	Aug. 8	2.25 p. m.	39 54 30	70 17 30	73	°	390	gn. M.	ENE.	4	N.	1	L. B. T.
2348	Aug. 8	4.37 p. m.	39 56 00	70 17 30	69	°	200	gn. S. bk. Sp.	ENE.	4	N.	.50	L. B. T.
2349	Aug. 8	6.43 p. m.	39 51 30	70 11 00	76	°	571	gn. M.	E.	4	NNW.	1.50	L. B. T.
2350	Aug. 9	8.23 a. m.	39 46 00	70 30 45	73	°	1	br. M.	E. by N.	4	NNW.	2	L. B. T.
2351	Aug. 9	12.53 p. m.	39 46 00	70 35 00	77	°	778	gy. Oz.	ENE.	4	W. by N.	1.50	L. B. T.
2352	Aug. 9	3.48 p. m.	39 48 00	70 36 00	72	°	721	gy. Oz.	ENE.	3	N.	.50	L. B. T.
2353	Aug. 9	5.56 p. m.	39 48 00	70 36 00	72	°	551	gn. M.	ENE.	4	N.	.50	L. B. T.
2354	Aug. 10	6.13 a. m.	39 53 00	71 32 00	75	°	445	gn. M.	E.	1	N.	.50	L. B. T.
2355	Aug. 10	7.39 a. m.	39 52 15	71 32 00	72	°	186	gn. M. S.	E.	2	NNW.	.50	L. B. T.
2356	Aug. 10	9.00 a. m.	39 53 15	71 31 00	76	°	154	gn. M. fine S.	SE.	2	NNW.	.50	L. B. T.
2357	Aug. 10	12.16 p. m.	39 47 15	71 50 30	76	°	123	gn. M.	SE.	2	NNW.	.50	L. B. T.
2358	Aug. 10	1.11 p. m.	39 48 00	71 48 30	78	°	120	br. M. S.	SE.	1	NNE.	1	S. B. T.

2560	Aug. 10	3.13 p.m.	39 48 10	71 48 40	78	76	50.7	114	br. M. S.	SE.	1	NE.	L. B. T.
2561	Aug. 10	5.53 p.m.	39 48 10	71 42 00	89	77	59.2	500	gn. Oz.	SSE.	1	N. by E.	L. B. T.
2562	Aug. 11	5.53 p.m.	39 15 30	71 25 00	76	77	37.3	434	gy. Oz.	S.	1	NE. by N.	L. B. T.
2563	Aug. 11	10.30 a.m.	39 15 30	71 23 30	82	77	37.4	422	gy. Oz.	S.	1	N.	L. B. T.
2564	Aug. 11	3.23 p.m.	39 22 00	71 23 30	78	78	37.3	390	gy. and br. Oz.	SW.	2	NE. by N.	L. B. T.
2565	Aug. 28	1.15 p.m.	38 19 20	69 02 30	72	77	36.2	2,069	gy. Oz.	SW.	2	E.	L. B. T.
2566	Aug. 28	5.39 a.m.	37 23 00	68 08 00	75	80	36.4	2,650	gy. and br. Oz.	SW.	4	SW. by S.	L. B. T.
2567	Aug. 30	5.27 a.m.	37 45 00	68 06 00	72	78	36.4	2,721	gy. Oz.	ENE.	2	(†)	L. B. T.
2568	Aug. 31	9.48 a.m.	39 15 00	68 08 00	72	75	36.9	1,781	gy. Oz.	ENE.	2	N. by E.	L. B. T.
2569	Sept. 1	3.00 p.m.	39 56 00	68 03 30	74	75	37.0	1,782	gy. Oz.	W.	2	SSW.	L. B. T.
2570	Sept. 1	7.12 a.m.	39 54 00	67 05 30	72	72	36.8	1,813	gy. Glob. Oz.	Calm.	1	N.	L. B. T.
2571	Sept. 1	1.37 p.m.	40 09 30	67 09 00	75	72	37.8	1,356	gy. Glob. Oz.	WSW.	2	N.	L. B. T.
2572	Sept. 2	5.00 a.m.	40 29 00	66 04 00	72	72	37.8	1,742	gy. Glob. Oz.	NW.	3	W.	L. B. T.
2573	Sept. 2	12.12 p.m.	40 34 18	66 09 00	71	71	36.7	1,791	yl. Glob. Oz.	NW.	3	WNW.	L. B. T.
2574	Sept. 3	7.19 a.m.	41 02 30	65 03 15	65	71	37.3	1,710	yl. Glob. Oz.	NW.	1	W.	L. B. T.
2575	Sept. 3	1.43 p.m.	41 07 00	65 26 30	64	71	37.1	18	crs. wh. S. yl. Sp.	NW.	1	WNW.	L. B. T.
2576	Sept. 4	1.38 p.m.	41 15 30	68 21 00	64	61	.....	32	yl. S. l. lrd.	SW.	2	N. by W.	L. B. T.
2577	Sept. 4	2.55 p.m.	41 17 00	68 24 30	63	61	54.4	37	fine wh. S. bk. Sp.	SW.	2	WNW.	L. B. T.
2578	Sept. 4	4.34 p.m.	41 50 30	68 47 00	62	61	42.2	70	fine dk. gy. S.	S.	2	W.	L. B. T.
2579	Sept. 4	6.30 p.m.	41 53 00	69 01 00	64	62	42.4	83	yl. S. bk. Sp.	SSW.	2	W.	L. B. T.
2580	Sept. 4	8.21 a.m.	41 55 30	69 01 00	66	70	.....	394	gn. M.	SSW.	4	S.	L. B. T.
2581	Sept. 4	8.10 p.m.	39 43 00	71 34 00	68	70	47.2	137	gn. M. S.	SSW.	4	NE.	L. B. T.
2582	Sept. 18	2.53 p.m.	39 50 45	71 43 00	68	70	39.5	541	gy. M.	W.	4	(†)	L. B. T.
2583	Sept. 18	4.18 p.m.	39 08 30	72 17 00	74	73	39.0	328	dk. gy. M.	W.	4	W.	L. B. T.
2584	Sept. 19	7.02 a.m.	39 05 30	72 23 20	71	72	38.0	542	dk. gy. M.	W.	4	(†)	L. B. T.
2585	Sept. 19	9.33 a.m.	39 08 30	72 40 00	69	71	39.7	404	dk. gy. M.	NNE.	3	W.	L. B. T.
2586	Sept. 20	11.40 a.m.	39 02 00	72 38 00	70	71	39.5	479	gn. M.	NNE.	3	W.	L. B. T.
2587	Sept. 20	3.21 p.m.	38 52 00	72 50 30	66	70	41.2	231	gn. M. S.	ENE.	6	N. by W.	L. B. T.
2588	Sept. 21	8.37 a.m.	38 53 30	72 52 00	68	71	47.6	190	gn. M. S.	ENE.	3	N. by W.	L. B. T.
2589	Sept. 21	10.28 a.m.	38 53 30	72 52 00	67	71	.....	188	gn. M. S.	ENE.	3	N. by W.	L. B. T.
2590	Sept. 21	12.08 p.m.	38 53 30	72 52 00	67	71	.....	120	fine gy. S.	N.	4	S.	L. B. T.
2591	Oct. 17	11.14 a.m.	35 02 20	73 12 00	70	79	.....	143	gy. S. bk. Sp.	N.	4	SSW.	L. B. T.
2592	Oct. 17	12.00 p.m.	35 01 19	73 12 00	70	79	.....	169	crs. gy. S. bk. Sh.	N.	4	NNE.	L. B. T.
2593	Oct. 17	1.35 p.m.	35 01 00	73 12 00	70	78	.....	63	gy. S. bk. Sh.	N.	3	S.	L. B. T.
2594	Oct. 17	4.26 p.m.	35 08 00	73 05 30	78	78	.....	49	gy. S.	N.	3	S.	L. B. T.
2595	Oct. 17	5.52 p.m.	35 08 30	73 10 00	74	78	.....	15	crs. gy. S.	NE.	3	SE.	L. B. T.
2596	Oct. 18	6.07 a.m.	34 57 00	73 43 30	69	76	.....	22	wh. S. bk. Sh.	NE.	2	by E.	L. B. T.
2597	Oct. 18	7.18 a.m.	34 51 00	73 40 15	71	77	.....	85	wh. S. bk. Sh.	NE.	2	by E.	L. B. T.
2598	Oct. 18	8.25 a.m.	34 45 20	73 38 10	72	77	.....	27	fine gy. S. bk. Sp. brk. Sh.	NE.	2	by E.	L. B. T.
2599	Oct. 18	9.33 a.m.	34 39 30	73 35 30	75	78	.....	107	gy. S. p.	NE.	2	by E.	L. B. T.
2600	Oct. 18	11.09 a.m.	34 39 15	73 33 30	74	78	.....	124	gy. S. p.	NE.	2	by E.	L. B. T.
2601	Oct. 18	12.03 p.m.	34 38 30	73 33 30	71	78	.....	154	S. R.	NE.	2	by E.	L. B. T.
2602	Oct. 18	1.35 p.m.	34 37 30	73 33 30	76	77	.....	34	yl. S. bk. Sh.	ENE.	2	by E.	L. B. T.
2603	Oct. 18	5.25 p.m.	34 37 30	73 33 30	73	78	.....	32	wh. S. bk. Sp.	Cal.	1	by W.	L. B. T.
2604	Oct. 18	6.43 p.m.	34 35 30	73 45 30	73	78	.....	23	wh. S. bk. Sp.	W. NW.	1	S.	L. B. T.
2605	Oct. 18	7.58 p.m.	34 35 15	73 52 00	71	76	.....	18	fine gy. S.	ENE.	3	ENE.	L. B. T.
2606	Oct. 19	6.43 a.m.	34 38 00	76 12 00	71	76	.....	22	crs. gy. S. bk. Sp.	SSE.	1	SSE.	L. B. T.
2607	Oct. 19	7.19 a.m.	34 32 00	76 12 00	71	76	.....	22	fine gy. S.	S.	1	S.	L. B. T.
2608	Oct. 19	8.24 a.m.	34 25 00	76 12 00	74	78	.....	22	fine gy. S.	S.	1	S.	L. B. T.

* Dories lowered with trawl grapnels to drag for coral. † Lost trawl. ‡ Dredge-rope parted, losing large beam-trawl and 321 fathoms of wire rope.

Record of dredgings and trawlings of the U. S. Fish Commission steamer Albatross, etc.—Continued.

Serial number.	Date.	Time.	Position.		Temperature.		Depth.	Character of bottom.	Wind.		Drift.		Instrument used.
			Lat. N.	Long. W.	Air.	Surface.	Bottom.		Direction.	Force.	Direction.	Distance.	
2610	1885, Oct. 19	9.32 a. m.	34 28 00	0 12 00	74	75	°	Fath.	S.	3	SSE.	.25	L. B. T.*
2611	Oct. 19	10.35 a. m.	34 15 00	76 11 20	76	75	°	wh. S. bk. Sp. brk. Sh.	ESE.	3	SSW.	.25	L. B. T.
2612	Oct. 19	11.49 a. m.	34 11 00	76 10 30	77	78	°	bk. S. brk. Sh.	ESE.	3	NE. by N.	.25	L. B. T.
2613	Oct. 19	1.45 p. m.	34 09 00	76 02 00	77	78	°	crs. wh. S. brk. Sh.	SSE.	2	NE.	.50	L. B. T.
2614	Oct. 19	3.00 p. m.	34 09 00	76 02 00	77	78	°	gy. S. bk. Sp.	SSE.	2	NE.	.50	L. B. T.
2615	Oct. 20	6.17 a. m.	33 45 00	77 25 00	76	75	°	gy. S. bk. Sp.	SSE.	3	SSE.	.25	L. B. T.
2616	Oct. 20	7.20 a. m.	33 42 45	77 31 00	76	75	°	gy. S.	SSE.	3	SSE.	.25	Dredge.
2617	Oct. 20	10.00 a. m.	33 37 30	77 36 30	77	75	°	S. p.	SE.	3	E.	.25	Dredge.
2618	Oct. 20	10.55 a. m.	33 37 15	77 35 30	76	74	°	crs. vl. S. brk. Sh.	SE.	3	E.	.25	S. B. T.
2619	Oct. 20	11.19 a. m.	33 38 00	77 36 00	76	74	°	crs. vl. S. brk. Sp. rot. Co.	SE.	3	E.	.25	Dredge.
2620	Oct. 20	12.13 p. m.	33 37 45	77 36 30	78	75	°	gy. S. rot. Co.	SE. by S.	3	ESE.	.25	S. B. T.
2621	Oct. 20	1.54 p. m.	33 34 00	77 42 00	76	75	°	gy. S. brk. Co.	SE. by S.	3	ESE.	.25	S. B. T.
2622	Oct. 20	3.48 p. m.	33 33 00	77 36 00	76	74	°	gy. S. brk. Co.	SE. by S.	3	ESE.	.25	S. B. T.
2623	Oct. 20	4.09 p. m.	33 33 00	77 36 00	76	74	°	gy. S. brk. Co.	WSW.	3	SSW.	.50	L. B. T.
2624	Oct. 21	6.27 a. m.	32 38 00	77 29 13	71	76	°	gy. S. bk. Sp.	NE.	5	S. by E.	.50	L. B. T.
2625	Oct. 21	7.50 a. m.	32 35 00	77 30 30	69	76	°	fine gy. S.	SE. by S.	5	SE. by S.	.50	L. B. T.
2626	Oct. 21	10.50 a. m.	32 27 30	77 20 30	69	76	°	yl. M.	SSW.	2	E.	.50	L. B. T.
2627	Oct. 21	2.06 p. m.	32 21 30	77 07 00	69	77	°	yl. M.	SSW.	4	W.	.50	L. B. T.
2628	Oct. 21	3.51 p. m.	32 24 00	76 55 30	70	77	°	yl. M.	SSW.	2	W.	.50	L. B. T.

In the preceding and following tables the abbreviations for the characters of the bottom and the instrument used are from the following code:

Abbre- viation.	Meaning.	Abbre- viation.	Meaning.	Abbre- viation.	Meaning.	Abbre- viation.	Meaning.	Abbre- viation.	Meaning.
C	Clay.	P	Pebbles.	lge	large.	stf	stiff.	br	brown.
Co	Coral.	Oz	Ooze.	rk	rocky.	slat	slate color.	choc	chocolate color.
St	Stones.	R	Rock.	rot	rotten.	yl	yellow.	gn	green.
G	Gravel.	Sh	Shells.	stk	sticky.	bk	black.	lt	light.
S	Sand.	Glob	Globigerina.	crs	coarse.	bu	blue.	dk	dark.
For	Foraminif. rn.	Sp	Specks.	hrd	hard.	gy	gray.	Sh	Ship's dredge (mud- bag).
Pter	Pteropods.	brk	broken.	sm	small.	rd	red.	Tgls	Tangles.
M	Mud.	fine	fine.	stf	soft.	wh	white.		

Record of dredgings and tracings of the U. S. Fish Commission steamer Albatross, from January 1 to October 26, 1886.

Serial number.	Date.	Hour.	Position.		Temperature.		Depth.	Character of bottom.	Wind.		Drift.	Instrument used.	
			Lat. N.	Long. W.	Air.	Surface.			Bottom.	Direction.			Force.
			°	'	°	'							
	1886.						<i>Fath.</i>					<i>Miles.</i>	
3629	Mar. 8	12.07 p. m.	23 48.40	73 10.40	73	73	38.4	Co. S.	N.	1	S. by W. $\frac{3}{4}$ W.	1	L. B. T.
2630	Mar. 12	2.10 p. m.	24 39.45	76 11.30	72	72	61.8	Co. S.	SE.	4	ESE.	4	Tgls.
2631	Mar. 12	3.03 p. m.	24 39.30	76 11.00	73	72	59.8	Co. S.	SE.	4	NW.	4	Tgls.
2632	Mar. 13	2.29 p. m.	24 30.43	76 23.45	75	73	39.4	Co. S. gy. Oz	SSE.	4	E. by N.	2	L. B. T.
2633	Apr. 7	8.05 a. m.	23 11.00	82 19.50	74	76	60.8	Co. S.	NE.	3		3	Tgls.
2634	Apr. 7	8.48 a. m.	23 10.45	82 18.45	74	76	60.8	br. S. brk. Sh.	NE.	3		3	Tgls.
2635	Apr. 7	10.05 a. m.	23 10.55	82 18.55	71	73	62.8	dead Co. Sh.	N. by E.	3		3	Tgls.
2636	Apr. 7	10.52 a. m.	23 10.45	82 18.45	71	73	62.6	dead Co. Sh.	N. by E.	3		3	Tgls.
2637	Apr. 7	11.32 a. m.	23 10.45	82 19.00	70	75	65.8	dead Co. Sh.	N. by E.	3		3	Tgls.
2638	Apr. 9	2.09 p. m.	23 17.45	82 18.00	69	76	39.6	yl. S.	N.	3		3	Tgls.
2639	Apr. 9	6.05 a. m.	25 04.50	80 15.10	70	73	56	Co. S.	NE.	4	NE. by N.	4	L. B. T.
2640	Apr. 9	6.33 a. m.	25 05.00	80 15.00	70	73	56	Co. S.	NE.	4	NE. by N.	4	Bl. Dr.
2641	Apr. 9	8.14 a. m.	25 11.30	80 10.00	70	74	69.2	Co. S.	NE.	4	NE. by N.	4	L. B. T.
2642	Apr. 9	10.41 a. m.	25 20.30	79 58.00	71	74	42.6	gy. S.	NE.	4	NE. by N.	4	L. B. T.
2643	Apr. 9	11.54 a. m.	25 25.00	79 55.15	71	74	43.1	gy. S.	NE. by E.	4	NE. by N.	4	L. B. T.
2644	Apr. 9	2.01 p. m.	25 40.00	80 00.00	73	73	43.4	gy. S.	NE. by E.	4	NE. by N.	4	L. B. T.
2645	Apr. 9	3.15 p. m.	25 46.30	80 02.00	70	75	43.4	gn. S.	NNE.	3	N. $\frac{3}{4}$ W.	3	Bl. Dr.
2646	Apr. 9	4.14 p. m.	25 47.00	80 03.00	71	75	85	gy. S. For.	NNE.	3	N.	3	Bl. Dr.

Record of dredgings and trawlings of the U. S. Fish Commission steamer Albatross, etc.—Continued.

Serial number.	Date.	Hour.	Position.		Temperatures.		Character of bottom.	Wind.		Drift.	Distance.	Instrument used.
			Lat. N.	Long. W.	Air.	Surface.	Bottom.	Direction.	Force.	Direction.	Miles.	
2647	1886. Apr. 9	4.49 p. m.	25 48 00	80 04 00	71	75	o	gy. S. For.	NNE.	N.	$\frac{1}{2}$	Bl. Dr.
2648	Apr. 9	5.17 p. m.	25 53 00	80 03 00	71	73	85	gn. M.	NNE.	N.	$\frac{1}{2}$	Bl. Dr.
2649	Apr. 12	5.25 p. m.	23 34 00	76 33 00	73	74	74.2	Co. S.	SE.			Tgls.
2650	Apr. 12	6.01 p. m.	23 34 00	76 34 00	73	74	73.8	Co. S. wh. Oz.	SE.	SE. by E.	2	Tgls.
2651	Apr. 13	9.46 a. m.	24 02 00	77 12 45	75	74	97	wh. M.	E.			Tgls.
2652	Apr. 13	10.06 a. m.	24 12 30	77 13 00	75	74	140	wh. M.	E.			Bl. Dr.
2653	Apr. 14	11.35 a. m.	24 52 30	77 39 00	78	74	1,000	lt. br. Oz.	N.	NW. by W.	3	L. B. T.
2654	May 2	8.29 a. m.	27 57 30	77 27 30	76	73	600	yl. Oz. bk. Sp.	WNW.	NW. by W.	1	L. B. T.
2655	May 2	5.49 p. m.	27 22 00	78 07 30	72	70	338	gy. S. bk. Sp.	NW.	NW. by W.	1	L. B. T.
2656	May 3	5.24 a. m.	27 58 30	78 24 00	69	71	41.2	For.	N.	WNW.	1	L. B. T.
2657	May 3	8.35 a. m.	28 08 00	78 28 00	71	73	540	For.	N.	WNW.	1	L. B. T.
2658	May 3	12.20 p. m.	28 21 00	78 33 00	72	73	44.7	For. brk. Sh.	N. by E.	NNW. & W.	1	L. B. T.
2659	May 3	3.35 p. m.	28 32 00	78 42 00	73	74	514	br. For.	N	NNW.	1	L. B. T.
2660	May 3	6.47 p. m.	28 40 00	78 46 00	72	71	509	yl. For.	N	NW.	1	L. B. T.
2661	May 4	5.29 a. m.	29 16 30	79 36 30	70	75	438	gy. S. bk. Sp.	NNE.	NNW.	1	L. B. T.
2662	May 4	8.19 a. m.	29 21 50	79 43 00	72	75	437	gy. S. bk. Sh.	ENE.	NNW.	1	L. B. T.
2663	May 4	10.46 a. m.	29 59 00	79 49 00	72	77	421	br. S.	ENE.	NNW.	1	L. B. T.
2664	May 4	2.26 p. m.	29 41 00	79 55 00	74	75	42.7	Co. S.	E.	NNW.	1	L. B. T.
2665	May 4	5.16 p. m.	29 47 00	80 05 45	73	76	46.2	fine gy. S.	ESE.	SSE.	1	L. B. T.
2666	May 5	5.26 a. m.	30 47 30	79 49 00	70	74	48.3	gy. S.	E.	NNE.	1	L. B. T.
2667	May 5	7.22 a. m.	30 53 00	79 42 30	73	75	48.7	gy. S. bk. Sp.	E.	NNE.	1	L. B. T.
2668	May 5	9.37 a. m.	30 58 30	79 38 30	75	76	46.3	gy. S. dead Co.	E.	NNE.	1	L. B. T.
2669	May 5	11.23 a. m.	31 09 00	79 33 30	73	77	43.7	gy. S. dead Co.	E.	NNE.	1	L. B. T.
2670	May 5	1.52 p. m.	31 20 00	79 22 00	73	74	44.5	gy. S. dead Co.	E.	NNE.	1	L. B. T.
2671	May 5	2.45 p. m.	31 20 00	79 22 00	75	77	280	gy. S. dead Co.	E. by S.	NE. by E.	1	Tgls.
2672	May 5	5.55 p. m.	31 31 00	79 05 00	73	77	54.3	crs. br. S.	SE.	NE. by E.	1	Tgls.
2673	May 6	5.17 a. m.	32 26 00	77 43 30	72	77	51.6	Co. gy. S. bk. Sp.	SW.	E.	1	L. B. T.
2674	May 6	8.45 a. m.	32 32 00	77 17 00	72	76	46.0	gy. S. bk. Sp. Sh.	SW.	E.	1	L. B. T.
2675	May 6	10.10 p. m.	32 32 30	77 15 00	73	75	45.8	gy. S. bk. Sp. Sh.	SW.	E.	1	L. B. T.
2676	May 6	12.19 p. m.	32 39 00	77 01 00	73	77	45.8	gn. Oz. gy. S.	SW.	E.	1	L. B. T.
2677	May 6	2.49 p. m.	32 39 00	76 50 30	75	78	478	gn. M.	SW.	SSW.	1	L. B. T.
2678	May 6	5.42 p. m.	32 40 00	76 40 30	74	77	38.7	lt. gy. Oz.	SW.	SSW.	1	L. B. T.
2679	May 6	8.14 p. m.	32 50 00	76 40 30	72	75	782	lt. gy. Oz.	SW.	SSW.	1	L. B. T.
2680	July 16	9.27 a. m.	30 50 00	70 36 00	75	73	555	No specimen.	S. by E.	SSE. & E.	1	L. B. T.
2681	July 16	12.55 p. m.	30 43 00	70 59 00	75	73	38.5	gn. M.	WSW.	SE. & E.	1	L. B. T.
2682	July 16	5.28 p. m.	30 38 00	70 22 00	73	73	38.2	gn. M. S.	WSW.	SE. by S.	1	L. B. T.
2683	July 17	5.04 a. m.	30 33 00	70 50 00	73	71	887	br. Oz.	SSW.	SE. by S.	1	L. B. T.
2684	July 17	8.18 a. m.	30 35 00	70 54 00	73	72	1,106	br. C. bk. Sp.	SSW.	SSE.	1	L. B. T.

2653	July 17	1.59 p.m.	30 35 00	71 02 30	74 73 37.9	1, 137	gn. M. wh. Sp.	Calm.	0	S.	L.B.T.
2656	July 18	4.31 a.m.	39 52 00	71 50 45		226	gn. M.	SW.	2	W.	L.B.T.
2657	July 18	6.12 a.m.	39 46 00	71 19 00		326	gn. M.	SW.	1	W.	L.B.T.
2658	July 18	8.17 a.m.	39 42 00	71 12 00		644	gn. M.	SW.	1	SW. by W.	L.B.T.
2659	July 18	10.18 a.m.	39 42 00	71 15 30		525	gn. M.	SSW.	1	NW.	L.B.T.
2660	July 18	1.12 p.m.	39 39 00	71 11 00		643	gn. M.	Calm.	1	SW.	L.B.T.
2661	July 18	5.18 p.m.	39 37 00	71 08 00		835	lt. gn. M.	Calm.	0	SW.	L.B.T.
2662	Aug. 11	10.49 a.m.	46 50 00	44 35 00		73	gy. S. snl. bk. St.	SW.	2	NW.	L.B.T.
2663	Aug. 11	12.09 p.m.	46 53 00	44 39 30		78	rd and gn. S. bk. and gy. P.	NW.	3	W. by S.	L.B.T.
2664	Aug. 11	1.55 p.m.	46 52 30	44 54 30		86	gy. S. bk. Sp. P.	NW.	2	W. by S.	L.B.T.
2665	Aug. 11	3.44 p.m.	46 51 30	45 06 30		105	gy. S. bk. Sp. P.	W.	3	WNW.	L.B.T.
2666	Aug. 11	4.33 p.m.	46 53 30	45 05 30		98	gy. S. bk. Sp.	W.	3	NE.	L.B.T.
2667	Aug. 12	12.09 p.m.	47 40 00	47 35 30		206	gn. M. bk. Sp.	SSW.	2	SW. by S.	L.B.T.
2668	Aug. 22	8.10 a.m.	45 07 00	53 09 00		72	Co.	SSW.	2	S. by W.	L.B.T.
2669	Aug. 22	10.35 a.m.	45 01 00	53 23 00		90	gy. S. bk. Sp.	SSW.	2	E. by S.	L.B.T.
2670	Aug. 22	1.29 p.m.	44 56 30	55 48 00		59	gy. S. bk. Sp.	SW.	2	E. by S.	L.B.T.
2671	Aug. 22	2.02 p.m.	44 56 00	55 49 30		75	gy. S. bk. Sp.	S.	2	E. by S.	L.B.T.
2672	Aug. 22	5.25 p.m.	44 56 00	56 19 30		215	gn. M.	S.	3	E. by S.	L.B.T.
2673	Aug. 23	11.50 a.m.	44 01 00	59 02 30		140	gy. S. bk. Sp.	S. by W.	4	WSW.	L.B.T.
2674	Aug. 23	4.52 p.m.	43 42 00	59 24 00		110	lt. br. oz.	SW. by S.	6	NW. 3 W.	L.B.T.
2675	Aug. 23	9.11 a.m.	42 47 00	61 01 00		1, 255	gy. Oz. For.	SE.	1	N. by E. 2 E.	L.B.T.
2676	Aug. 27	9.33 a.m.	41 24 00	65 35 30		1, 188	br. Oz. For.	N.	2	SW.	L.B.T.
2677	Aug. 27	2.21 p.m.	41 24 00	65 48 00		1, 099	br. Oz. For.	SW. by W.	4	SW. by W.	L.B.T.
2678	Aug. 28	7.09 a.m.	40 07 00	67 49 00		866	br. M.	WSW.	3	WNW.	L.B.T.
2679	Aug. 28	9.55 a.m.	40 07 00	67 54 00		984	gn. M.	SSW.	3	WNW.	L.B.T.
2710	Aug. 28	2.45 p.m.	38 59 00	68 01 50		1, 544	gn. M.	SE.	4	W.	L.B.T.
2711	Sept. 16	3.40 p.m.	38 59 00	70 07 00		1, 867	br. Oz.	Calm.	4	W.	L.B.T.
2712	Sept. 17	5.49 a.m.	38 50 00	70 05 30		1, 859	br. Oz.	Calm.	0	W.	L.B.T.
2713	Sept. 17	11.20 a.m.	38 50 00	70 06 30		1, 825	br. Oz.	WSW.	1	SW.	L.B.T.
2714	Sept. 17	4.58 p.m.	38 22 00	70 17 30		1, 753	br. Oz.	WSW.	2	WNW.	L.B.T.
2715	Sept. 18	5.33 a.m.	38 29 30	70 54 30		1, 631	br. Oz. For.	NW.	2	NW.	L.B.T.
2716	Sept. 18	11.04 a.m.	38 24 00	71 13 00		1, 615	br. Oz.	NE.	3	NW.	L.B.T.
2717	Sept. 18	3.54 p.m.	38 24 00	71 13 00		1, 569	br. Oz.	E.	4	NNW.	L.B.T.
2718	Sept. 19	5.38 a.m.	38 24 00	71 52 00		1, 536	gy. Oz.	ESE.	3	NW.	L.B.T.
2719	Sept. 19	11.13 a.m.	38 29 00	71 58 00		1, 509	gy. Oz.	S.	2	NE. by N.	L.B.T.
2720	Sept. 19	3.54 p.m.	38 36 30	72 12 00		813	gy. Oz.	W. by N.	4	NW.	L.B.T.
2721	Sept. 20	6.02 a.m.	38 56 00	72 11 30		594	gy. Oz.	N. by W.	6	WSW.	L.B.T.
2722	Sept. 20	9.33 a.m.	39 13 00	72 01 00		1, 685	gy. Oz. For.	N. by W.	2	WSW. 3 W.	L.B.T.
2723	Oct. 23	5.42 a.m.	36 47 00	73 09 30		1, 641	gy. Oz. For.	NNW.	2	WSW.	L.B.T.
2724	Oct. 23	12.02 p.m.	36 47 00	73 25 00		1, 274	gy. Oz. For.	NE.	5	W. by S.	L.B.T.
2725	Oct. 24	5.54 a.m.	36 34 00	73 48 00		1, 253	gy. Oz.	NE.	4	W. by S.	L.B.T.
2726	Oct. 24	11.10 a.m.	36 34 00	73 54 30		1, 239	gy. Oz.	ENE.	4	NW. 3 N.	L.B.T.
2727	Oct. 24	4.09 p.m.	36 35 00	74 03 30		859	gy. Oz.	ENE.	3	NW. 3 N.	L.B.T.
2728	Oct. 25	5.45 a.m.	36 36 00	74 33 00		679	dk. gn. M.	E.	2	N. by E.	L.B.T.
2729	Oct. 25	9.10 a.m.	36 36 00	74 32 00		727	gn. M. For.	Calm.	0	N. by E.	L.B.T.
2730	Oct. 25	12.28 p.m.	36 42 00	74 30 00		781	gy. Oz.	SE.	1	WSW.	L.B.T.
2731	Oct. 26	4.12 p.m.	36 45 00	74 28 00		1, 152	dk. gn. M.	SE.	2	WSW.	L.B.T.
2732	Oct. 26	6.09 a.m.	37 27 00	73 43 00		944	gn. M.	SE.	1	SW.	L.B.T.
2733	Oct. 26	10.19 a.m.	37 26 00	73 43 00		841	sft. gn. M.	SE.	2	WSW.	L.B.T.
2734	Oct. 26	1.52 p.m.	37 23 00	73 53 00		811	sft. gn. M.	SE.	2	SW.	L.B.T.
2735	Oct. 26	4.55 p.m.	37 23 00	74 02 00							L.B.T.

Record of dredgings and trawlings of the U. S. Fish Commission steamer Albatross, from April 8 to September 19, 1887.

Serial number.	Date.	Hour.	Position.		Temperature.		Character of bottom.	Wind.		Drift.		Instrument used.
			Lat. N.	Long. W.	Air.	Surface.	Bottom.	Depth.	Direction.	Force.	Direction.	Distance.
	1887.		° ' "	° ' "	°	°	°	Fath.			Miles.	
2736	Apr. 8	11.00 a.m.	Hampton Roads.					11				S. B. T.
2737	Apr. 8	11.20 a.m.						12				S. B. T.
2738	Sept. 16	3.14 p.m.	36 52 00	74 28 00	70	70	37.9	958	N. by E.	5	NW by W.	S. B. T.
2739	Sept. 17	8.00 a.m.	37 34 30	73 58 00	65	69	38.1	811	NNE.	4	NNW.	L. B. T.
2740	Sept. 17	11.50 a.m.	37 40 00	73 50 00	65	70	37.9	1 011	NNE.	4	NW by N.	L. B. T.
2741	Sept. 17	3.30 p.m.	37 44 00	73 57 00	64	70	37.9	852	NE by N.	3	N	L. B. T.
2742	Sept. 17	3.25 p.m.	37 46 30	73 56 30	64	69	37.9	865	NE by N.	3	NW by N.	L. B. T.
2743	Sept. 18	8.06 a.m.	38 31 00	72 53 00	62	67	37.7	1 153	E. by S.	2	NW	L. B. T.
2744	Sept. 18	11.48 a.m.	38 35 00	73 05 15	65	69	38.0	554	E. by S.	2	NW	L. B. T.
2745	Sept. 18	4.20 p.m.	38 42 00	73 05 30	67	68	41.7	224	SE by E.	2	N by E.	L. B. T.
2746	Sept. 18	5.14 p.m.	38 46 00	73 05 45	65	68	53.3	1 02	SE by E.	2	NNE.	L. B. T.
2747	Sept. 19	6.00 a.m.	39 27 00	71 15 00	67	67	37.4	1 276	SW by W.	1	S.	L. B. T.
2748	Sept. 19	10.53 a.m.	39 31 00	71 14 30	72	68	37.7	1 163	Calm.	1	W.	L. B. T.
2749	Sept. 19	3.20 p.m.	39 42 00	71 17 00	69	67	38.7	705	S.	2		L. B. T.

LIST OF DREDGING STATIONS OCCUPIED BY THE U. S. COAST SURVEY STEAMERS CORWIN, BIBB, HASSLER, AND BLAKE, FROM 1867 TO 1880.

The dredgings from 1867 to 1871, and those of the *Hassler* in 1872, were all made by Count L. F. Pourtales, Assistant U. S. Coast Survey, in a great measure under the direction of Prof. Louis Agassiz, who accompanied several of the expeditions. Their positions were originally published in the Bulletin of the Museum of Comparative Zoology at Cambridge, Mass., in September, 1879. A continuous series of numbers running from 1 P. to 224 P. has been assigned to them for convenience in placing them on charts without confusing them with other Coast Survey or Fish Commission dredgings.

The following stations were occupied by the *Corwin*, Acting Master R. Platt, U. S. Navy, commanding, in 1867, in connection with a survey for a telegraph cable between Key West and Havana. The expedition was cut short by the breaking out of yellow fever on board.

Serial number.	Date.	Depth.	Locality.
		<i>Fathoms.</i>	
1 P	May 17	90-100	5 miles SSW. of Sand Key, Fla.
2 P	May 24	270	1.6 miles from Chorrera, Cuba.
3 P	May 25	350	2 miles from Chorrera, Cuba.
4 P	May 29	270	1.6 miles from Chorrera, Cuba.

The dredging in 1868 and 1869 were made by the *Bibb*, Acting Master R. Platt, U. S. Navy, commanding. They are all situated in the Florida straits, between Tortugas and Cape Florida. The positions, as published in the Bulletin of the Museum of Comparative Zoology, were only given in a general way, and are here taken from Count Pourtales's original charts, preserved in the Coast Survey Office. A separate series of numbers is attached to each day's work, both on the charts and in the bulletin, and these numbers and the depths given correspond for the most part, except that the depth on the charts have been corrected whilst those in the bulletin are apparently from the original rough notes. In some cases, however, a different number is given to the haul on the chart from that in the bulletin. All notes here given on the character of the bottom are also derived from the charts. The number and letter assigned to each dredging on the original charts and record-books, the number given in the bulletin, and the depths given by them, respectively, are given in separate columns, so as to facilitate future comparisons. A few hauls, mostly shallow water ones, it has been impossible to place exactly.

Dredgings made by U. S. Coast Survey, 1868-'69.

Serial number.	No. on charts and record-books.	No. in bulletin.	Date.	Latitude N.	Longitude W.	Depth in fathoms (bulletin).	Depth given on chart, etc.	Nature of bottom.	Locality.
5 P.	.....	2	1868.	o o "	o o "	195	.....	.....	Off Sombbrero.
6 P.	.....	3	Apr. 23	.....	.....	115	.....	.....	Do.
7 P.	7 B.	7	Apr. 23	24 28 50	81 03 10	111	111	Hard	Do.
8 P.	6 B.	6	May 1	24 25 15	81 01 30	121	121	do	Do.
9 P.	5 B.	5	May 1	24 21 40	81 00 00	111	140	Rocky	Do.
10 P.	4 B.	4	May 1	24 18 00	80 58 30	152	152	do	Do.
11 P.	3 B.	3	May 1	24 16 20	80 57 30	183	180	do	Do.
12 P.	2 B.	2	May 1	24 14 20	80 57 00	262	228	do	Do.
13 P.	1 B.	1	May 1	24 12 30	80 55 30	517	517	Mud	Do.
14 P.	1 D.	1	May 4	24 33 30	81 19 00	19	19	.....	Off Bahia Honda.
15 P.	4 D.	4	May 4	24 30 20	81 18 20	75	75	Sand	Do.
16 P.	5 D.	5	May 4	24 29 30	81 17 30	95	91	.....	Do.
17 P.	6 D.	6	May 4	24 28 30	81 16 30	105	105	.....	Do.
18 P.	7 D.	7	May 4	24 26 30	81 14 30	100	100	Rocky	Do.
19 P.	9 D.	9	May 4	24 22 30	81 10 30	119	112	.....	Do.
20 P.	10 D.	10	May 4	24 19 40	81 07 00	128	128	.....	Do.
21 P.	11 D.	11	May 4	24 17 00	81 03 20	176	167	.....	Do.
22 P.	12 D.	12	May 4	24 14 20	80 59 40	324	310	.....	Do.
23 P.	13 D.	13	May 4	24 12 50	80 58 00	418	400	Mud	Do.
24 P.	1 E.	1	May 6	24 30 20	81 30 30	16	16	Rotten shells	Off American Shoal.
25 P.	3 E.	3	May 6	24 28 30	81 30 30	43	43	Mud	Do.
26 P.	4 E.	4	May 6	24 28 00	81 30 15	55	55	do	Do.
27 P.	5 E.	5	May 6	24 27 30	81 29 45	75	70	do	Do.
28 P.	6 E.	6	May 6	24 27 00	81 29 00	83	83	do	Do.
29 P.	7 E.	7	May 6	24 26 40	81 28 30	98	98	.....	Do.
30 P.	8 E.	8	May 6	24 26 00	81 27 50	94	94	Rocky	Do.
31 P.	9 E.	9	May 6	24 25 20	81 27 00	100	99	Hard	Do.
32 P.	1 F.	1	May 8	24 24 40	81 29 00	111	111	Mud	Do.
33 P.	3 F.	3	May 8	24 20 30	81 24 30	150	129	Coral and rocky	Do.
34 P.	4 F.	4	May 8	24 18 10	81 22 10	135	132	.....	Do.
35 P.	5 F.	5	May 8	24 15 50	81 19 40	263	260	.....	Do.
36 P.	3 G.	2	May 9	24 27 15	81 39 20	34	34	Mud and sand	Off the Samboes.
37 P.	6 G.	4	May 9	24 26 00	81 38 40	67	67	Mud	Do.
38 P.	7 G.	5	May 9	24 25 05	81 38 00	80	80	.....	Do.
39 P.	8 G.	6	May 9	24 24 00	81 37 10	93	93	Broken shells	Do.
40 P.	9 G.	7	May 9	24 23 20	81 36 15	96	96	Mud	Do.
41 P.	10 G.	8	May 9	24 22 40	81 35 00	101	100	do	Do.
42 P.	11 G.	9	May 9	24 22 00	81 34 00	106	104	do	Do.
43 P.	12 G.	10	May 9	24 21 20	81 33 00	106	106	do	Do.
44 P.	13 G.	11	May 9	24 20 45	81 32 00	116	116	Hard	Do.
45 P.	14 G.	12	May 9	24 20 05	81 31 00	123	121	.....	Do.
46 P.	15 G.	13	May 9	24 19 10	81 30 00	125	123	Coral, rock	Do.
47 P.	16 G.	14	May 9	24 18 45	81 28 45	125	121	Hard	Do.
48 P.	18 G.	16	May 9	24 16 20	81 24 30	139	137	.....	Do.
49 P.	19 G.	17	May 9	24 14 45	81 22 30	147	145	Hard	Do.
50 P.	20 G.	18	May 9	24 13 20	81 20 20	298	292	Sand and shells	Do.
51 P.	21 G.	19	May 9	24 12 40	81 19 25	237	312	Fine coral mud	Do.
52 P.	2 H.	2	May 11	24 26 10	81 47 30	26	26	Coral and shells	Off Sand Key.
53 P.	4 H.	3	May 11	24 25 15	81 47 30	54	54	Broken shells	Do.
54 P.	6 H.	4	May 11	24 24 20	81 47 00	67	67	do	Do.
55 P.	8 H.	5	May 11	24 23 30	81 46 40	82	82	do	Do.
56 P.	10 H.	6	May 11	24 22 50	81 46 20	94	94	.....	Do.
57 P.	11 H.	7	May 11	24 22 00	81 46 00	103	103	.....	Do.
58 P.	13 H.	9	May 11	24 20 20	81 45 20	119	115	Hard	Do.
59 P.	14 H.	10	May 11	24 19 30	81 45 00	119	119	do	Do.
60 P.	15 H.	11	May 11	24 19 00	81 44 50	128	119	.....	Do.
61 P.	16 H.	12	May 11	24 18 30	81 44 20	127	118	.....	Do.
62 P.	17 H.	13	May 11	24 17 55	81 43 50	123	123	.....	Do.
63 P.	18 H.	14	May 11	24 17 30	81 43 20	134	130	.....	Do.
64 P.	19 H.	15	May 11	24 17 00	81 43 00	143	140	.....	Do.
65 P.	20 H.	16	May 11	24 16 00	81 42 00	138	137	.....	Do.
66 P.	21 H.	17	May 11	24 15 00	81 41 10	154	150	.....	Do.
67 P.	23 H.	19	May 11	24 13 25	81 39 30	306	297	Mud	Do.
68 P.	24 H.	20	May 11	24 12 30	81 38 30	248	241	do	Do.
69 P.	.....	1	May 15	.....	.....	100	.....	.....	Do.
70 P.	.....	3	May 15	.....	.....	100	.....	.....	Do.
71 P.	.....	4	May 15	.....	.....	100	.....	.....	Do.
72 P.	.....	5	May 15	.....	.....	100	.....	.....	Do.
73 P.	.....	6	May 15	.....	.....	100	.....	.....	Do.
74 P.	.....	1	May 16	.....	.....	120	.....	.....	Do.
75 P.	2 & 3	1	May 16	.....	.....	120	.....	.....	Do.
76 P.	4 & 5	1	May 16	.....	.....	120	.....	.....	Do.
77 P.	.....	6	May 16	.....	.....	120	.....	.....	Do.
78 P.	.....	1	1869.	.....	.....	6-7	.....	.....	South of Tortugas.

Nearly south from
Sand Key.

Dredgings made by U. S. Coast Survey, etc.—Continued.

Serial number.	No. on charts and record-books.	No. in bulletin.	Date.	Latitude N.	Longitude W.	Depth in fathoms (bulletin).	Depth given on chart, etc.	Nature of bottom.	Locality.
			1869.	° ' "	° ' "				
79 P.	1 A.	2	Jan. 15	24 30 30	82 59 15	13	13	Broken shells.....	South of Tortugas.
80 P.	2 A.	3	Jan. 15	24 27 30	82 59 30	17	18	Mud.....	Do.
81 P.	3 A.	4	Jan. 15	24 24 45	82 59 45	34	34	do.....	Do.
82 P.	6 A.	7	Jan. 15	24 16 00	83 00 45	260	261	do.....	Do.
83 P.	(*)	1 & 2	Jan. 16	24 39 00	83 07 30	30-32	30-32	Sand and shells....	Do.
84 P.	3 B.	3	Jan. 16	24 40 30	83 15 00	35	35	do.....	Do.
85 P.	4 B.	4	Jan. 16	24 41 30	83 19 00	36	36	do.....	Do.
86 P.	5 B.	5	Jan. 16	24 42 00	83 22 45	36	36	Sand, shells, sponges.	Do.
87 P.	6 B.	6	Jan. 16	24 42 30	83 26 30	35	35	do.....	Do.
88 P.	7 B.	7	Jan. 16	24 43 30	83 30 30	35	36	do.....	Do.
89 P.	8 B.	8	Jan. 16	24 43 40	83 34 30	37	37	Sand, grass.....	Do.
90 P.	9 B.	9	Jan. 16	24 44 00	83 38 30	37	37	Sand, shells, sponges.	Do.
91 P.	10 B.	10	Jan. 16	24 44 15	83 42 00	34	34	Coral.....	Do.
92 P.	11 B.	11	Jan. 16	24 44 15	83 46 00	43	43	do.....	Do.
93 P.	12 B.	(f)	Jan. 16	24 44 15	83 49 20	42	42	do.....	Do.
94 P.	1 C.	1	Jan. 17	24 48 11	83 49 00	43	43	do.....	Do.
95 P.	3 C.	3	Jan. 17	24 48 45	84 01 00	124	124	Coarse sand.....	Do.
96 P.	5 C.	5	Jan. 17	24 49 00	84 13 00	502	502	Gray mud.....	Do.
97 P.	1 D.	1	Jan. 18	24 33 30	83 09 45	25	25	Gray sand, black specks.	Do.
98 P.	3 D.	3	Jan. 18	24 29 45	83 17 00	60	60	Rocky.....	Do.
99 P.	4 D.	4	Jan. 18	24 28 15	83 20 15	115	115	Mud.....	Do.
100 P.	5 D.	5	Jan. 18	24 26 15	83 24 00	214	214	do.....	Do.
101 P.	6 D.	6	Jan. 18	24 25 00	83 27 45	306	316	do.....	Do.
102 P.	7 D.	7	Jan. 18	24 22 45	83 32 00	389	389	do.....	Do.
103 P.	8 D.	8	Jan. 18	24 20 30	83 37 00	468	450	do.....	Do.
104 P.	1 E.	1	Jan. 22	24 33 45	82 44 15	13	13	Coarse sand, broken shells.	Do.
105 P.	2 E.	2	Jan. 22	24 29 15	82 44 00	11	11	do.....	Do.
106 P.	3 E.	3	Jan. 22	24 26 30	82 43 40	163	163	Mud, coarse sand.	Do.
107 P.	4 E.	4	Jan. 22	24 23 00	82 43 15	47	37	White mud.....	Do.
108 P.	5 E.	5	Jan. 22	24 19 00	82 42 45	118	118	do.....	Do.
109 P.	6 E.	6	Jan. 22	24 15 45	82 41 15	290	290	do.....	Do.
110 P.	7 E.	7	Jan. 22	24 12 00	82 40 00	349	349	do.....	Do.
111 P.	8 E.	8	Jan. 22	24 09 15	82 39 00	377	377	do.....	Do.
112 P.	9 E.	9	Jan. 22	24 07 00	82 37 20	416	416	do.....	Do.
113 P.	1 F.	1	Jan. 23	24 24 00	82 24 30	34	34	Broken shells.....	Do.
114 P.	2 F.	2	Jan. 23	24 20 00	82 24 45	74	75	Gray mud.....	Do.
115 P.	1 G.	1	Feb. 10	24 26 00	82 11 00	42	42	Mud.....	Off Marquesas.
116 P.	.....	2	Feb. 10	.....	.....	55	.....	.....	Do.
117 P.	.....	3	Feb. 10	.....	.....	40	.....	.....	Do.
118 P.	.....	(c)	Feb. 10	.....	.....	12-15	.....	.....	Do.
119 P.	1 H.	1	Feb. 11	24 21 30	82 11 00	107	100	Mud.....	South of Marquesas.
120 P.	2 H.	2	Feb. 11	24 18 45	82 11 15	132	130	Rocky.....	Do.
121 P.	3 H.	3	Feb. 11	24 17 30	82 11 15	140	140	do.....	Do.
122 P.	5 H.	5	Feb. 11	24 15 45	82 10 30	296	296	Mud.....	Do.
123 P.	6 H.	6	Feb. 11	24 13 40	82 09 00	333	333	do.....	Do.
124 P.	5 J.	1	Feb. 15	24 22 15	82 02 30	105	105	.....	Off Boca Grande.
125 P.	6 J.?	2	Feb. 15	24 21 00	82 01 30	122	122	Sandy mud.....	Do.
126 P.	6 J.?	3	Feb. 15	24 21 00	82 01 30	122	122	do.....	Do.
127 P.	.....	4	Feb. 15	.....	.....	125	.....	.....	Do.
128 P.	.....	5	Feb. 15	.....	.....	125	.....	.....	Do.
129 P.	4 J.	6	Feb. 15	24 23 00	82 02 30	90	90	.....	Do.
130 P.	1 K.	1	Feb. 16	24 19 20	82 06 30	125	125	Rocky.....	Do.
131 P.	3 K.	3	Feb. 16	24 13 40	82 09 00	327	.....	Mud.....	Do.
132 P.	4 K.	4	Feb. 16	24 11 00	82 09 45	368	368	White mud.....	Do.
133 P.	5 K.	5	Feb. 16	24 08 15	82 10 45	405	405	Mud.....	Do.
134 P.	1 L.	1	Feb. 17	24 24 30	81 57 30	50	53	Sand, mud.....	Southwest of Sand Key.
135 P.	2 L.	2	Feb. 17	24 20 30	81 58 30	125	125	Rocky.....	Do.
136 P.	3 L.	3	Feb. 17	24 16 45	81 58 45	138	136	do.....	Do.
137 P.	4 L.	4	Feb. 17	24 13 30	81 59 00	325	320	Mud.....	Do.
138 P.	5 L.	5	Feb. 17	24 23 00	81 55 30	87	85	.....	Do.
139 P.	.....	1	Mar. 4	.....	.....	450	.....	.....	Off Cojima, near Havana.
140 P.	2 M.	2	Mar. 5	23 27 30	80 55 30	638	638	.....	Off Cruz del Padre, Cuba.
141 P.	1 N.	1	Mar. 10	23 57 30	80 29 15	315	315	.....	Off Double-headed Shot Keys.
142 P.	.....	1	Mar. 21	.....	.....	40	.....	.....	Off Conch Reef.
143 P.	.....	2	Mar. 21	.....	.....	45	.....	.....	Off French Reef.

* 1 and 2 B.

† 12 and 13.

‡ Several.

Dredgings made by U. S. Coast Survey, etc.—Continued.

Serial number.	No. on charts and record-books.	No. in bulletin.	Date.	Latitude N.	Longitude W.	Depth in fathoms (bulletin).	Depth given on chart, etc.	Nature of bottom.	Locality.
144 P.	.....	3	1869. Mar. 21	o " "	o " "	49	.....	.....	Off the Elbow Reef.
145 P.	1 O.	4	Mar. 21	25 08 30	80 11 15	70	70	Sand.....	Off Carysfort Reef.
146 P.	2 O.	5	Mar. 21	25 10 30	80 10 45	60	60	do.....	Do.
147 P.	3 O.	6	Mar. 21	25 12 30	80 10 30	48	48	do.....	Do.
148 P.	4 O.	7	Mar. 21	25 13 40	80 10 45	40	40	do.....	Do.
149 P.	5 O.	8	Mar. 21	25 14 15	80 11 15	35	35	Sand, mud.....	Do.
150 P.	.....	9	Mar. 21	.....	.....	12	.....	.....	Off Turtle Harbor.
151 P.	1 P.	1	Mar. 23	25 11 15	80 09 45	63	70	Broken shells.....	Off Carysfort Reef.
152 P.	2 P.	2	Mar. 23	25 10 30	80 06 00	116	102	do.....	Do.
153 P.	3 P.	3	Mar. 23	25 12 00	80 02 00	138	138	Sand.....	Do.
154 P.	4 P.	4	Mar. 23	25 13 20	79 57 00	293	293	do.....	Do.
155 P.	5 P.	5	Mar. 23	25 16 30	79 53 00	317	317	White mud.....	Do.
156 P.	6 P.	6	Mar. 23	25 20 00	79 50 00	320	320	do.....	Do.
157 P.	7 P.	7	Mar. 23	25 23 00	79 48 00	351	351	do.....	Do.
158 P.	1 Q.	1	Mar. 31	25 11 00	80 11 00	52	52	Rocky.....	Do.
159 P.	2 Q.	2	Mar. 31	25 08 30	80 06 00	117	118	do.....	Do.
160 P.	3 Q.	3	Mar. 31	25 06 30	80 01 00	206	206	Sand.....	Do.
161 P.	4 Q.	4	Mar. 31	25 04 40	79 55 40	349	349	Mud.....	Do.
162 P.	.....	2 & 3	Apr. 1	.....	.....	9	.....	.....	Off Orange Key, Bahamas.
163 P.	1 T.	1	Apr. 3	25 01 35	80 20 15	15	15	Rocky.....	Off French Reef.
164 P.	2 T.	2	Apr. 3	25 01 25	80 19 45	37	37	do.....	Do.
165 P.	3 T.	3	Apr. 3	25 01 20	80 19 30	44	44	do.....	Do.
166 P.	4 T.	4	Apr. 3	25 01 00	80 18 45	50	50	Sand.....	Do.
167 P.	5 T.	5	Apr. 3	25 00 00	80 16 30	75	70	Shells.....	Do.
168 P.	6 T.	6	Apr. 3	24 58 40	80 14 15	100	94	Broken shells.....	Do.
169 P.	1 U.	1	Apr. 21	24 18 00	81 50 15	135	125	Rocky.....	Off Key West.
170 P.	2 U.	2	Apr. 21	24 14 00	81 51 45	295	290	Coral.....	Do.
171 P.	4 U.	3	Apr. 21	.....	.....	140	140	do.....	Do.
172 P.	5 U.	4	Apr. 21	.....	.....	140	134	do.....	Do.
173 P.	6 U.	5	Apr. 21	.....	.....	120	124	do.....	Do.
174 P.	1 X.	1	May 7	24 44 30	80 45 00	21	25	Sand.....	Off Tennessee Reef.
175 P.	2 X.	2	May 7	24 42 45	80 44 15	53	53	Mud.....	Do.
176 P.	3 X.	3	May 7	24 40 40	80 44 00	85	85	Shells.....	Do.
177 P.	4 X.	4	May 7	24 38 30	80 42 45	108	105	Sand, shells.....	Do.
178 P.	5 X.	5	May 7	24 36 30	80 41 00	114	114	Shells.....	Do.
179 P.	6 X.	6	May 7	24 35 00	80 39 00	115	115	Sand, shells.....	Do.
180 P.	7 X.	7	May 7	24 33 00	80 37 00	124	124	Coral.....	Do.
181 P.	8 X.	8	May 7	24 31 15	80 35 00	160	157	Shells.....	Do.
182 P.	9 X.	9	May 7	24 29 15	80 33 00	174	174	Coral, shells.....	Do.
183 P.	10 X.	10	May 7	24 27 45	80 31 00	200	200	Rocky.....	Do.
184 P.	2 Y.	2	May 8	24 49 15	80 35 30	41	41	Mud.....	Off Alligator Reef.
185 P.	3 Y.	3	May 8	24 48 05	80 34 45	53	53	do.....	Do.
186 P.	4 Y.	4	May 8	24 47 15	80 34 00	68	64	Shells.....	Do.
187 P.	5 Y.	5	May 8	24 46 30	80 33 00	79	76	Broken shells.....	Do.
188 P.	6 Y.	6	May 8	24 47 15	80 32 15	88	88	Sand, broken shells.....	Do.
189 P.	7 Y.	7	May 8	24 44 45	80 31 30	110	110	Rocky.....	Do.
190 P.	8 Y.	8	May 8	24 43 40	80 30 45	110	113	do.....	Do.
191 P.	9 Y.	9	May 8	24 42 45	80 28 40	113	113	Sand, broken shells.....	Do.
192 P.	10 Y.	10	May 8	24 41 45	80 27 45	118	118	Rocky.....	Do.
193 P.	11 Y.	11	May 8	24 40 30	80 25 55	138	135	Broken shells, coral.....	Do.
194 P.	12 Y.	12	May 8	24 39 30	80 23 15	147	147	do.....	Do.
195 P.	13 Y.	13	May 8	24 38 30	80 22 30	156	160	Shells.....	Do.
196 P.	14 Y.	14	May 8	24 37 20	80 20 15	189	188	Broken shells.....	Do.
197 P.	15 Y.	15	May 8	24 26 00	80 18 05	238	238	Fine sand.....	Do.
198 P.	1 Z.	1	May 11	24 56 15	80 27 30	30	30	Broken shells.....	Off Conch Reef.
199 P.	2 Z.	2	May 11	24 55 40	80 26 30	39	39	do.....	Do.
200 P.	3 Z.	3	May 11	24 54 15	80 25 20	49	48	do.....	Do.
201 P.	4 Z.	4	May 11	24 53 15	80 23 30	60	60	do.....	Do.
202 P.	5 Z.	5	May 11	24 52 20	80 22 20	77	77	Sand, shells.....	Do.
203 P.	6 Z.	6	May 11	24 51 30	80 19 40	117	117	do.....	Do.
204 P.	7 Z.	7	May 11	24 50 15	80 17 30	139	139	Broken shells.....	Do.
205 P.	8 Z.	8	May 11	24 49 20	80 14 30	157	137	do.....	Do.
206 P.	9 Z.	9	May 11	24 48 00	80 11 30	169	168	Sand, shells.....	Do.
207 P.	10 Z.	10	May 11	24 46 45	80 08 15	257	257	do.....	Do.
208 P.	1 A.	1	May 13	25 19 20	80 08 15	30	30	do.....	Off Pacific Reef.
209 P.	2 A.	2	May 13	25 19 30	80 07 30	49	49	Rocky.....	Do.
210 P.	3 A.	3	May 13	25 19 40	80 06 30	60	60	Shells.....	Do.
211 P.	4 A.	4	May 13	25 20 10	80 05 15	75	75	Fine sand.....	Do.
212 P.	5 A.	5	May 13	25 21 00	80 03 00	98	98	do.....	Do.
213 P.	6 A.	6	May 13	25 22 00	80 01 00	180	177	Mud.....	Do.
214 P.	7 A.	7	May 13	25 23 15	79 59 15	233	222	do.....	Do.
215 P.	8 A.	8	May 13	25 25 00	79 58 00	283	243	do.....	Do.
216 P.	9 A.	9	May 13	25 27 00	79 57 00	287	287	do.....	Do.

On the voyage of the *Hassler*, Lieut. Commander R. P. Johnson, U. S. Navy, commanding, from Boston to San Francisco in 1871-'72, dredgings, numbered from 1 to 8, were made off Sandy Bay, Barbados, and twenty-six other dredgings were made in the South Atlantic, besides fifteen made off the coast of Chili. To the thirty-four hauls in the Atlantic, numbers from 217 P. to 250 P. have been assigned. The dredgings were made by Count Pourtales under the direction of Prof. Louis Agassiz.

Dredgings of the Hassler in 1871-'72.

Serial number.	Original number of dredging.	Date.	Latitude S.	Longitude W.	Depth in fathoms.	Locality.
217-20 P.	1-4	1871. Dec. 29			75-100	Off Sandy Bay, Barbados.
221-24 P.	5-8	Dec. 30			17-100	Do.
225 P.	9	1872. Jan. 18	11 49	Between 37° 10' and 37° 27' standing off and on shore.	15	Off coast of Brazil, north of Bahia.
226 P.	10	Jan. 18	11 49		17	Do.
227 P.	11	Jan. 18	11 49		40	Do.
228 P.	12	Jan. 18	11 49		500	Do.
229 P.	13	Jan. 18	11 49		20	Do.
230 P.	14	Jan. 18	11 49		75	Do.
231 P.	15	Jan. 18	11 49		200	Do.
232 P.	16	Jan. 20			30	Off the Abrolhos, Brazil.
233 P.	17	Jan. 20			20	Do.
234 P.	18	Jan. 20			26	Do.
235 P.	19	Jan. 20			44	Do.
236 P.	20	Jan. 22			35	Off Cape Frio, Brazil.
237 P.	21	Jan. 22			45	Do.
238 P.	22	Feb. 20	32 00	50 15	70	Off Coast of Brazil, north of river La Plata.
239 P.	23	Feb. 20	32 00	50 15	70	Do.
240 P.	24	Feb. 22	34 55	54 12	19	Off La Plata River.
241 P.	25	Feb. 29	35 12	55 30	7	In La Plata River.
242 P.	26	Mar. 1	37 42	56 20	44	Off La Plata River.
243 P.	27	Mar. 3	40 22	60 35	30	Off Bahia Blanca, Argentine Republic.
244 P.	28	Mar. 4	41 17	63 00	17	Off mouth of Rio Negro, Argentine Republic.
245 P.	29	Mar. 4	41 15	63 50	25	In Gulf of S. Matias, Argentine Republic.
246 P.	30	Mar. 7	41 40	63 13	30	Do.
247 P.	31	Mar. 9	44 52	64 10	55	Off Cape Raso, Patagonia.
248 P.	32	Mar. 11	49 40	66 50	57	Off Point S. Julian, Patagonia.
249 P.	33	Mar. 12	51 26	68 05	58	Off Coy Inlet, Patagonia.
250 P.	34	Mar. 13			22	Off Cape Possession, Patagonia.

The dredgings in 1872, except those of the *Hassler*, were made by Dr. William Stimpson. The first ones were made upon the *Bibb*, Acting Master R. Platt, U. S. Navy, commanding, those numbered 1 to 29 S. in this list being in the Yucatan Channel, following a proposed telegraph line, and 30 to 34 S. south of Sand Key, near Key West. Dr. Stimpson afterwards joined the *Bache*, Lieut. Commander I. A. Howell, commanding, and made dredgings numbered 41 to 60 S. Lieutenant Commander Howell had made a few dredgings in anticipation of Dr. Stimpson joining him, numbered 35 to 40 S. All the *Bache's* dredgings were off the west coast of Florida, except 56 to 60 S., which were southwest of the Tortugas.

Dredgings made by the Bibb and Bache in 1872.

Serial number.	Original number.	Date.	Latitude N.	Longitude W.	Depth.	Kind of bottom.	Locality.	Temperatures.		
								Air.	Surface.	Bottom.
		1872.	° ' "	° ' "	Fath.			°	°	°
1 S.	1	Feb. 10	22 02 20	84 57 20	230	rky	In the Yucatan Channel.			
2 S.	2	Feb. 10	22 00 30	85 00 00	317		do		74	67
3 S.	3	Feb. 10	21 58 20	85 02 40	441	M	do		75	48
4 S.	4	Feb. 10	21 55 45	85 05 50	663	Co. M.	do		74	42
5 S.	1	Feb. 16	22 01 35	84 57 00	25		do			
6 S.	2	Feb. 16			110		do			
7 S.	3	Feb. 16	22 01 20	84 57 20	162	Co. S.	do			
8 S.	4	Feb. 16	22 00 30	85 00 50	203	Co. rky	do		78	00½
9 S.	5	Feb. 16	21 59 10	85 04 10	377	Co. M. S.	do		74	51
10 S.	6	Feb. 16	21 54 15	85 01 30	584	Co. S. M.	do		79	41
11 S.	7	Feb. 16	21 52 20	85 00 10	493	M	do		76	48
12 S.	1	Feb. 17	21 51 15	84 59 15	180	Co. S.	do			
13 S.	2	Feb. 17	21 51 00	85 01 45	366		do		77	52½
14 S.	3	Feb. 17	21 50 20	85 04 15	635	M. S.	do		78	40
15 S.	4	Feb. 17	21 48 40	85 09 10	963	crs. S. brk. Sh.	do		77	39½
16 S.	5	Feb. 17	21 44 10	85 13 50	1,066	Co. M.	do		79	39½
17 S.	1	Feb. 18	21 45 20	85 23 50	940	crs. S. M	do		78	39½
18 S.	2	Feb. 18	21 40 45	85 33 00	1,054	M.	do		78½	39½
19 S.	3	Feb. 18	21 35 45	85 44 15	1,164	S. M	do		78½	39½
20 S.	1	Feb. 23	21 15 20	86 35 10	72	brk. Sh.	do			
21 S.	2	Feb. 23	21 16 35	86 32 35	105		do		79	66
22 S.	3	Feb. 23	21 18 00	86 30 00	153	rky	do		76	51½
23 S.	4	Feb. 23	21 21 25	86 26 10	262	wh. S.	do		76	49½
24 S.		Mar. 6	21 29 00	86 40 00	17	M. Sh. rk.	On Yucatan Bank.			
25 S.		Mar. 6	21 37 00	86 38 00	22	S. Sh.	do			
26 S.	1	Mar. 7	21 24 05	86 15 00	260	fine. Co. S	In the Yucatan Channel.		76	47
27 S.	1	Mar. 11	21 31 10	86 00 15	1,127	yll. M.	do		79½	40½
28 S.	2	Mar. 11	21 37 30	85 52 00	1,081	Co. M. S.	do		81	40
29 S.	3	Mar. 11	21 35 45	85 44 15	1,164	S. M	do		78½	39½
30 S.	1	Mar. 29	24 17 00	81 54 00	133		Sand Key bears NE. ½ E.			
31 S.	2	Mar. 29			134	M.	Near preceding			
32 S.	3	Mar. 29			134		do			
33 S.		Mar. 29			125		Sand Key bears NE. by N. ½ N.			
34 S.		Mar. 29			119		Near preceding			
35 S.		Feb. 17	25 03 00	82 13 00	12	brk. Sh.	North of Marquesas.	67	69	67
36 S.		Feb. 18	25 03 10	82 55 00	25	bl. M.	North of Tortugas.	66	70	67
37 S.		Feb. 18	25 03 30	82 14 05	33	bl. M.	do	66	69	64
38 S.		Feb. 18	25 03 40	83 26 50	35	gr. M	Northwest of Tortugas.	67	69	67
39 S.		Feb. 18	25 03 55	83 42 10	40	brk. Sh. Co.	gas. do	74	70	68
40 S.		Feb. 18	24 56 30	84 14 00	169		do	76	78	55
41 S.	24	Apr. 19	27 07 00	82 47 00	13	Co. sponge	Off west coast of Florida.	75	78	83
42 S.	28	Apr. 19	27 07 00	82 51 00	14	gr. S. brk. Sh.	do	75	78	80
43 S.	32	Apr. 19	27 07 00	82 55 10	15	gr. S. brk. Sh.	do	76	78	79
44 S.	65	Apr. 19	27 07 30	84 11 00	50	fine. gr. S. blk. Sp	do	74	77	74
45 S.	70	Apr. 20	27 07 30	84 26 00	81	fine. gr. S.	do	75	77	76
46 S.	11	Apr. 23	26 17 25	84 36 00	132	wh. S. brk. Sh.	do	75	80	56
47 S.	13	Apr. 23	26 17 25	84 31 25	123		do	73	80	57
48 S.	17	Apr. 23	26 17 20	84 21 20	100	gr. S. M	do	78	81	60
49 S.	34	Apr. 23	26 16 50	83 40 25	45	S	do	75	78	67
50 S.	35	Apr. 23	26 16 50	83 37 45	40	S	do	74	78	
51 S.	52	Apr. 24	26 16 30	82 57 20	23	gr. S. M	do	72	78	
52 S.	55	Apr. 24	26 16 25	82 50 10	19	gr. S. M	do	71	74	
53 S.	57	Apr. 24	26 16 25	82 47 25	18	gr. S. brk. Sh.	do	71	74	
54 S.	57	Apr. 24	26 16 20	82 46 00			do	71	74	
55 S.	60		26 16 10	82 45 30	16	rky	do	74	79	
56 S.	1	May 13	24 34 25	82 57 00	8	Co. rky	Southwest of Tortugas.	74	78	
57 S.	7	May 13	24 30 40	83 02 50	15	crs. S. brk. Sh.	gas. do	74	78	85
58 S.	9	May 13	24 26 55	83 00 35	37	blk. sp. brk. Co.	do	76	78	
59 S.	12	May 13	24 23 00	83 17 90	125	gr. M	do	78	79	
60 S.	15	May 13	24 19 50	83 24 00	600	gr. M	do	79	82	

NOTE.—Either the depth or the position of 60 S. must be erroneous, as there is less than 200 fathoms there.

During the season of 1877-'78 the dredging operations from December to March were in charge of Prof. Alexander Agassiz, and were conducted upon the *Blake*, Lieut. Commander C. D. Sigsbee, U. S. Navy, commanding. The cruise extended from Key West to Havana, from Havana westward along the north coast of Cuba, from Key West to the Tortugas, thence to the northern extremity of the Yucatan Bank and Alacran Reef, to Cape Catoche and across to Cape San Antonio, returning to Key West, and from Key West to the Tortugas, and northward to the mouth of the Mississippi River. The positions were originally published in the Bulletin of the Museum of Comparative Zoology at Cambridge, Mass., September, 1879. In giving these positions on the charts, etc., the word Ag. has been added to the numbers in the bulletin so as to distinguish them from the dredgings of the U. S. Fish Commission, Count Pourtales, etc. The positions from 1 Ag. to 4 Ag. are taken from Sigsbee's original charts.

Dredgings made by the Blake in 1877-'78.

Serial number.	Latitude N.	Longitude W.	Depth.	Locality.	Temperatures.	
					Surface.	Bottom.
	° ' "	° ' "	<i>Fathoms.</i>		°	°
1 Ag.	23 14 00	82 25 00	801	North of Havana.....	73	39½
2 Ag.	23 14 00	82 25 00	805	do.....	77	39½
3 Ag.	23 31 00	82 16 00	924	do.....	78½	39½
4 Ag.	23 39 30	82 14 00	936	do.....	77½	39½
5 Ag.	24 15 00	82 13 00	152-229	South of Marquesas Keys, Florida.....	76	49½
6 Ag.	24 17 30	82 09 00	137	do.....		
9 Ag.				Only mud brought up.....		
10 Ag.	24 44 00	83 26 00	111	Seven miles S. by W. from Sand Key.....	70	55½
11 Ag.	24 43 00	83 25 00	37	West of Tortugas.....		
12 Ag.	24 34 00	83 16 00	36	do.....		
13 Ag.			742	North of Havana.....		
14 Ag.	23 18 00	82 21 00	850-900	do.....		
15 Ag.	23 14 00	82 25 00	785	do.....		
16 Ag.	23 11 00	82 23 00	292	do.....	77	55½
17 Ag.	23 04 00	82 43 00	320	Off Mariel, Cuba.....	76	50½
18 Ag.	23 07 00	82 43 30	756	do.....	76	40
19 Ag.	23 03 00	83 10 30	310	Off Bahia Honda, Cuba.....	75	52½
20 Ag.	23 02 30	83 11 00	220	do.....	76	62
21 Ag.	23 02 00	83 13 00	287	do.....		
22 Ag.	23 01 00	83 14 00	190	do.....	77	71
23 Ag.	23 01 00	83 14 00	190	do.....	77	64
24 Ag.	23 02 30	83 13 00	342	do.....	78	50
25 Ag.	23 04 00	83 12 30	635	do.....	78	40½
26 Ag.	24 37 30	83 36 00	110	West of Tortugas.....	72	58½
27 Ag.	24 30 00	83 49 00	392	do.....	73	44½
28 Ag.	24 34 00	84 00 00	863	do.....	75	39½
29 Ag.	24 36 00	84 05 00	953	do.....		39½
30 Ag.	24 33 00	84 34 00	968	do.....		39½
31 Ag.	24 33 00	84 23 00	1,920	do.....		39½
32 Ag.	23 32 00	88 05 00	95	North part of Yucatan Bank.....		
33 Ag.	24 01 00	88 58 00	{ 1,400 to } 1,568 }	North of Yucatan Bank.....	72½	40½
34 Ag.	23 52 00	88 56 00	400-600	do.....	81	40½
35 Ag.	23 52 00	88 58 00	804	do.....	78	40½
36 Ag.	23 13 00	89 16 00	84	North part of Yucatan Bank.....	74	60
37 Ag.			35	Northwest end of Alacran Reef, Yucatan Bank.....		
38 Ag.	23 10 00	88 35 00	20	North part of Yucatan Bank.....		
39 Ag.			14	Sixteen miles north of Jolbos Islands, southwest part of Yucatan Bank.....		
40 Ag.	23 26 00	84 02 00	1,323	Northwest of Cuba.....	77	40
41 Ag.	23 42 00	83 13 00	860	do.....	73	39½
42 Ag.	23 53 00	83 04 30	620	do.....		39½

*7 and 8 Ag.

†In 600 fathoms.

Dredgings made by the Blake, etc.—Continued.

Serial number.	Latitude N.	Longitude W.	Depth.	Locality.	Temperatures.	
					Surface.	Bottom.
	° ' "	° ' "	<i>Fathoms.</i>		°	°
43 Ag.	24 08 00	82 51 00	339	South of Dry Tortugas.....		45
44 Ag.	25 33 00	84 35 00	539	Northwest of Dry Tortugas.....	74½	39½
45 Ag.	25 33 00	84 21 00	101	do.....	75	61½
46 Ag.	25 43 00	84 47 30	888	do.....		39½
47 Ag.	28 42 00	88 40 00	321	Off mouth of the Mississippi.....	74½	46½
48 Ag.	28 47 30	88 41 30	533	do.....	66	41½
49 Ag.	28 51 30	89 01 30	118	do.....		
50 Ag.	26 31 00	85 53 00	*119			
51 Ag.	23 11 00	82 21 00	243-450	Off Havana.....		
52 Ag.	23 09 00	82 23 00	158	do.....		
53 Ag.			242	do.....		
54 Ag.			175	do.....		
55 Ag.	23 09 00	82 21 00	242	do.....		
56 Ag.	23 09 00	82 21 30	175	do.....		
57 Ag.	23 09 15	82 21 00	177	do.....		
58 Ag.	23 09 30	82 11 30	242	do.....		
59 Ag.			158	do.....		
60 Ag.			480	do.....		
61 Ag.	23 09 00	82 01 00	243	do.....		
62 Ag.			80	do.....		
63 Ag.			177	do.....		
64 Ag.			122-240	do.....		
65 Ag.			127	do.....		
66 Ag.			80-100	do.....		
67 Ag.			128-240	do.....		
68 Ag.			243-458	do.....		
69 Ag.			100	do.....		
70 Ag.			111	Off Sand Key.....		
71 Ag.			458	Off Havana.....		
72 Ag.			50	Off Sand Key.....		
73 Ag.	23 25 00	83 11 00	220	North of Bahia Honda, Cuba.....		
74 Ag.	23 25 00	83 11 00	287	do.....		
75 Ag.			292	Off Havana.....		
76 Ag.			154	do.....		
77 Ag.			240	do.....		
78 Ag.			129	do.....		
79 Ag.			175	do.....		

NOTE.—Stations 50 to 79 were occupied by Lieut. Commander Sigsbee while in search of *Pentacrinus*.
 *The position or depth must be wrong, as there are 1,700 fathoms there; perhaps 28° 31'.

No dredgings appear to have been taken to which the numbers 80 to 99 in this series were originally given, but on the original chart of Sigsbee's cruise seven dredging stations are marked, which are not contained in Professor Agassiz's list in the bulletin. To these, numbers from 80 to 86 Ag. have been assigned.

Serial number.	Latitude N.	Longitude W.	Depth.	Kind of bottom.	Locality.	Temperatures.	
						Surface.	Bottom.
	° ' "	° ' "	<i>Faths.</i>			°	°
80 Ag.	22 39 00	84 59 00	1,222	lt. br. M. and S.	Northwest of Cuba		
81 Ag.	22 11 30	88 11 00	20	S. and Sh.	South part of Campeche Bank		
82 Ag.	23 48 00	86 10 30	1,501	lt. br. M.	Northeast of Campeche Bank		
83 Ag.	23 52 00	86 31 30	603-9	lt. br. M.	do.		
84 Ag.	23 20 00	89 12 30	84	lt. br. M.	North edge of Campeche Bank		
85 Ag.	23 18 30	89 13 00	82	Co. M. and S.	do.		
86 Ag.	23 16 00	89 16 00	91	Co. M. and S.	do.		

During the season of 1878-'79, the dredgings, from December to March, were in charge of Prof. Alexander Agassiz, upon the *Blake*, commanded by Commander J. R. Bartlett, U. S. Navy. The cruise extended from Key West to Havana, from Havana to Jamaica through the Old Bahama Channel and Windward Passage, from Jamaica to St. Thomas, along the south coast of Hayti and Porto Rico. From St. Thomas the *Blake* visited Santa Cruz, Saba Bank, Montserrat, St. Kitts, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, the Grenadines, Grenada, extended the dredgings as far as the 100-fathom line off Trinidad, returned to St. Vincent, and finished the dredging operations at Barbados. These positions were also published in the Bulletin of the Museum of Comparative Zoology, September, 1879, and are distinguished in the same manner as the preceding ones. The serial numbers, temperatures, and localities are taken from the Bulletin, while the depths, latitudes, and longitudes, nature of bottom, original numbers of casts, and letters designating lines are mainly taken from "Hydrographic Notice No. 9 of 1882," published by the U. S. Hydrographic Office, with the exception of about a dozen hauls, to which no latitudes or longitudes are affixed.

Dredgings made by the Blake in 1878-'79.

Serial number.	Line.	Date.	Number of cast.	Latitude N.	Longitude W.	Depth.	Nature of bottom.	Locality.	Temperatures.	
									Surface.	Bottom.
100 Ag.		1878.				<i>Fath.</i>				
101 Ag.		Dec. 16	1	22 18 05	77 47 30	230-400		Off Morro Light, Havana.		
102 Ag.		Dec. 16	1	22 18 05	77 47 30	175-250		do		
103 Ag.	A	Dec. 16	2	22 18 19	77 44 45	138½	Coral sand.	Cayo Cruz to Lobos Light	78½	69
104 Ag.	A	Dec. 16	3	22 20 00	77 42 30	438	White coral, mud	Old Bahama Channel	79	49½
105 Ag.	A	Dec. 16	4	22 21 55	77 40 35	500	Broken shell	do	76½	45½
106 Ag.	A	Dec. 16	5	22 23 45	77 38 20	450½	Coral, sand	do	77½	48½
107 Ag.		Dec. 16	5	22 23 45	77 38 20	269½	Fine white sand	do		
108 Ag.		Dec. 17	1	21 42 45	76 35 55	994	Light-brown mud	do		
109 Ag.	B	Dec. 18	2	21 01 40	74 45 00	1,584	Soft gray globe, ooze	Off Neuvitas	78	39
110 Ag.	B	Dec. 18	3	20 29 30	74 21 00	1,265	Dark-brown mud, black specks	Off Cayo de Moa	76	38½
111 Ag.	B	Dec. 19	4	19 05 35	74 49 05	1,200	Soft gray globigerina, ooze	Off Cape Maysl	78	38½
112 Ag.	B	Dec. 19	5	18 38 00	75 09 30	1,050	Brown mud.	West of Navassa Bank	80	39½
113 Ag.	B	Dec. 20	6	17 50 30	76 40 50	633	do	Off east end Jamaica	82	39½
114 Ag.	B	Dec. 20	7	17 54 05	76 42 20	459	do	Off Port Royal, Jamaica	82	46
115 Ag.		Dec. 20	8	17 55 00	76 41 25	228	do	do		
116 Ag.	B							Southwest of Porto Rico	82½	40
117 Ag.	B		1	17 47 10	67 03 20	874	Gray gritty ooze			
118 Ag.	C	1879.						Between St. Thomas and Santa Cruz		
119 Ag.	C	Jan. 2	1	18 11 15	64 55 45	258	Coral sand	do	80½	39
120 Ag.	C	Jan. 2	2	18 07 15	64 55 30	1,105	Gray ooze	do	80½	38
121 Ag.	C	Jan. 2	3	18 02 00	64 54 35	1,932	do	do	80	39
122 Ag.	C	Jan. 2	4	17 56 55	64 54 15	2,393	do	do	80	38
123 Ag.	C	Jan. 3	5	17 52 15	64 53 45	2,412	Light-brown mud	do	77½	38
124 Ag.	C	Jan. 3	6	17 49 15	64 53 35	1,450	Fine light sand, black specks	do	80½	44
125 Ag.	C	Jan. 3	7	17 47 30	64 53 45	580	Fine white sand	do	81	42½
126 Ag.	C	Jan. 3	8	17 46 20	64 53 25	300	White sand, black specks	Off Santa Cruz	79	50½
127 Ag.	C	Jan. 4	9	17 45 10	64 53 15	226	Sand, black specks, shell	do	76½	60½
128 Ag.	C	Jan. 4	10	17 42 50	64 53 55	38	Gray ooze	Off Frederickstadt, Santa Cruz	81	60½
129 Ag.	C	Jan. 4	11	17 42 35	64 54 20	180	Ooze	do	85	48½
130 Ag.	C	Jan. 4	12	17 43 00	64 55 10	314	Gray ooze	do	84	44
131 Ag.	C	Jan. 5	13	17 38 45	64 54 50	451	Gray ooze	do	79	77
132 Ag.	C	Jan. 5	14	17 37 55	64 54 20	580	Coarse coral, sand, shell	Off Ham's Bluff, Santa Cruz	81	42½
133 Ag.	C	Jan. 5	15	17 37 15	64 55 10	117	Rock, broken shells	do	77	65
134 Ag.	C	Jan. 5	16	17 36 40	64 55 10	44	Coral, rock, broken shells	Off Frederickstadt, Santa Cruz		
135 Ag.	C	Jan. 6	17	17 37 15	64 48 20	248	Coral sand, broken shells	do	81	54½
136 Ag.	C	Jan. 6	18	17 41 25	64 55 55	450	Fine sand, ooze	do	81	42½
137 Ag.	C	Jan. 6	19	17 43 10	64 55 50	504	Fine sand, gray ooze	do	80	42½

137 A.	Jan. 6	20	17 45 15	64 55 20	625	Gray ooze.	do	791	41 1/2
138 A.	Jan. 7	21	17 50 45	64 53 40	2, 376	Light-brown ooze.	Off Santa Cruz.	791	38 1/2
139 A.	Jan. 8	22	17 46 45	64 48 50	218	Coarse sand.	Off Mount Eagle, Santa Cruz.	761	51
140 A.	Jan. 9	23	18 12 40	64 23 05	1, 891	Brown ooze, sand.	Off Virgin Gorda.	80	38 1/2
141 A.	Jan. 8	26	18 18 45	64 26 05	1, 891	Brown ooze, sand.	do	80	40 1/2
142 A.	Jan. 8	27	18 21 45	64 37 50	27	Sand, shell.	Flamagan Passage.	783	77 1/2
143 A.	Jan. 13	10	17 30 00	63 42 35	150	Ooze, sand.	Off Saba Bank.	79	63 1/2
144 A.	Jan. 13	13	17 37 50	63 36 10	21	Broken shell, sand.	On Saba Bank.	791	51
145 A.	Jan. 14	1	17 21 22	62 56 26	240	Fine sand, black specks.	Off St. Kitts.	791	52
146 A.	Jan. 14	2	17 22 36	62 54 12	275	Fine gray sand, ooze.	do	791	52 1/2
147 A.	Jan. 14	3	17 19 27	62 50 30	250	do	do	791	56 1/2
148 A.	Jan. 14	4	17 17 12	62 46 43	208	Fine sand, black specks.	do	791	56 1/2
149 A.	Jan. 15	5	17 16 40	62 43 48	61	Fine sand, broken shell, black specks.	Between St. Kitts and Nevis.	79	76
150 A.	Jan. 15	6	17 11 22	62 46 00	373 1/2	Fine sand, black specks.	do	79	76 1/2
151 A.	Jan. 15	7	17 11 22	62 46 00	356	Gray sand, black specks.	Off Nevis.	81 1/2	45
152 A.	Jan. 15	8	17 08 21	62 42 00	122	Gray sand, black specks.	Off St. Kitts.	791	67 1/2
153 A.	Jan. 16	10	16 43 45	62 16 12	303	Sand, broken shell, black specks.	Off St. Kitts.	791	48 1/2
154 A.	Jan. 16	11	16 41 10	62 14 50	298	Lava sand.	Off Montserrat.	80	49 1/2
155 A.	Jan. 16	12	16 41 54	62 13 24	88	do	do	80	69
156 A.	Jan. 16	12	16 41 54	62 13 24	120	Stony bottom.	do	80	53 1/2
157 A.	Jan. 18	1	15 59 10	61 44 15	148	Rock.	Off Guadeloupe.	80 1/2	43 1/2
158 A.	Jan. 19	3	15 59 55	61 46 20	196	Lava sand.	do	80 1/2	41
159 A.	Jan. 19	4	16 02 15	61 49 15	583	Lava sand, shell.	do	81 1/2	40
160 A.	Jan. 19	5	16 02 40	61 50 28	734	Lava sand.	do	81	40
161 A.	Jan. 20	6	16 03 10	61 52 20	769	Ooze, sand.	do	80	39 1/2
162 A.	Jan. 20	7	16 04 10	61 55 45	878	do	do	80	48
163 A.	Jan. 21	8	15 55 55	61 41 35	151	Lava sand.	do	80	59 1/2
164 A.	Jan. 21	9	15 54 35	61 40 45	277	Gray ooze.	do	80	55
165 A.	Jan. 21	12	15 55 50	61 37 05	150	Sand, black specks, shell.	do	80	48
166 A.	Jan. 21	13	16 09 40	61 20 25	175	Lost trawl.	do	80	59 1/2
167 A.	Jan. 21	14	16 09 55	61 28 08	101	Sand, shell.	do	80	55
168 A.	Jan. 22	15	15 57 25	61 43 40	309	Lava sand.	do	80	74 1/2
169 A.	Jan. 22	16	15 58 20	61 43 12	183	Lava sand, ooze.	do	80	40
170 A.	Jan. 22	17	15 58 10	61 42 55	62	Sand, broken coral.	do	81	40
171 A.	Jan. 22	17	15 58 10	61 42 55	734	Fine grayish-brown ooze.	do	80	39 1/2
172 A.	Jan. 24	1	15 32 18	61 32 00	878	Sand, brown ooze.	Off Dominica.	80	40 1/2
173 A.	Jan. 24	2	15 32 18	61 30 55	608	Dark-brown ooze.	do	80	40 1/2
174 A.	Jan. 24	3	15 32 18	61 30 55	391	Dark-brown ooze, sand.	do	80	43 1/2
175 A.	Jan. 24	4	15 32 18	61 30 10	118	Sand, broken shell.	do	80	65
176 A.	Jan. 25	4	15 34 10	61 29 35	130	Yellow sand.	do	80	61 1/2
177 A.	Jan. 25	5	15 30 50	61 32 55	824	Sand, brown ooze.	do	79 1/2	40
178 A.	Jan. 25	6	15 29 18	61 34 40	982	do	do	80 1/2	39 1/2
179 A.	Jan. 26	7	15 26 36	61 36 45	118	Sand, brown ooze.	do	80	65
180 A.	Jan. 27	8	15 24 05	61 27 10	1, 252	Dark-brown mud, fine sand.	do	81	39 1/2
181 A.	Jan. 27	9	15 24 35	61 26 45	94	Fine sand, mud.	do	79	69 1/2
182 A.	Jan. 27	10	15 24 55	61 27 10	333	do	do	79	44
183 A.	Jan. 27	11	15 21 40	61 25 20	98	do	do	80	66
184 A.	Jan. 27	12	15 14 10	61 24 20	410	do	do	80	43
185 A.	Jan. 28	12	15 14 10	61 24 20	410	do	do	79 1/2	

Dredgings made by the Blake, etc.—Continued.

Serial number.	Line.	Date.	Number of cast.	Latitude N.	Longitude W.	Depth.	Nature of bottom.	Locality.	Temperatures.	
									Surface.	Bottom.
188 A.	G	1879, Jan. 28	13	15 16 15	61 24 40	<i>Fath.</i> 372	Fine sand, mud	Off Dominica	79	43
189 A.	G	Jan. 29	14	15 18 05	61 24 23	84	do	do	79	69
190 A.	G	Jan. 29	15	15 18 12	61 26 32	542	Fine dark sand, black specks	do	79	42
191 A.	G	Jan. 29	16	15 16 50	61 26 30	109	Fine dark sand	do	79	64
192 A.	G	Jan. 30	17	15 17 20	61 24 22	138	Fine sand, mud	do	75	69
193 A.	H	Feb. 5	1	14 43 48	61 24 22	169	Shell, sand, dark mud	Off Martinique	79	51
194 A.	H	Feb. 5	2	14 43 48	61 12 25	441	Fine yellow sand	do	80	41
195 A.	H	Feb. 5	3	14 43 45	61 13 15	501	Fine sand, ooze, black specks	do	80	41
196 A.	H	Feb. 6	4	14 38 50	61 14 20	1,030	Fine gray sand, ooze	do	80	39
197 A.	H	Feb. 6	5	14 37 00	61 13 58	1,224	Light-brown ooze	do	80	39
198 A.	H	Feb. 6	6	14 30 40	61 06 50	137	Rocky	do	79	52
199 A.	H	Feb. 7	7	14 31 55	61 07 28	472	Sand	do	80	41
200 A.	H	Feb. 8	8	14 34 40	61 08 25	565	Dark gray ooze	do	80	40
201 A.	H	Feb. 9	9	14 29 45	61 05 56	190	Sand, shell	do	78	43
202 A.	H	Feb. 10	10	14 28 50	61 05 40	96	Sand, broken shell	do	79	61
203 A.	H	Feb. 10	11	14 24 55	61 00 05	476	Fine sand, broken shell	do	79	42
204 A.	H	Feb. 10	12	14 25 15	60 56 35	332	do	do	80	45
205 A.	H	Feb. 10	13	14 26 18	60 53 00	170	Fine sand	do	79	49
206 A.	H	Feb. 11	14	14 19 34	60 58 25	826	Sand, ooze, broken shell	do	80	30
207 A.	H	Feb. 11	15	14 25 15	60 54 50	213	Hard	do	80	50
208 A.	H	Feb. 11	16	14 26 15	60 58 10	189	do	do	80	40
209 A.	H	Feb. 12	17	14 29 10	61 03 47	191	Rough	do	80	40
210 A.	H	Feb. 12	18	14 28 40	61 08 08	357	Fine sand	do	80	40
211 A.	H	Feb. 12	19	14 32 38	61 08 40	317	Sand, ooze	do	80	40
212 A.	H	Feb. 12	20	14 30 43	61 08 40	357	Sand, ooze	do	80	45
213 A.	H	Feb. 12	21	13 51 30	61 03 45	892	Sand, ooze	do	79	30
214 A.	H	Feb. 13	1	13 51 30	61 03 45	226	Sand, rock	Off St. Lucia	79	51
215 A.	I	Feb. 15	2	13 51 45	61 03 30	153	Fine sand	do	79	54
216 A.	I	Feb. 15	3	13 51 40	61 05 37	397	Ooze	do	80	43
217 A.	I	Feb. 15	4	13 49 12	61 04 40	164	Gray sand	do	80	56
218 A.	I	Feb. 15	5	13 49 50	61 03 50	151	do	do	79	57
219 A.	I	Feb. 16	6	13 50 15	61 03 45	116	Rock	do	79	58
220 A.	I	Feb. 16	7	13 54 55	61 06 05	423	Sand, ooze	do	80	42
221 A.	I	Feb. 16	8	13 58 37	61 04 45	422	do	do	80	42
222 A.	I	Feb. 18	1	13 58 24	61 13 50	146	Fine black sand	Off St. Vincent	79	56
223 A.	J	Feb. 18	2	13 06 36	61 12 45	114	Coral	do	79	57
224 A.	J	Feb. 18	3	13 04 30	61 12 55	458	Fine sand	do	79	41
225 A.	J	Feb. 18	3	13 04 30	61 12 55	458	Fine sand	do	79	41

226 A.	Feb. 19	4	13 09 05	61 16 20	Fine dark sand	do	79½	42½
227 A.	Feb. 19	5	13 10 10	61 18 15	Sand, ooze	do	80	40½
228 A.	Feb. 19	6	13 11 20	61 19 48	do	do	81	39½
229 A.	Feb. 20	7	13 13 50	61 20 40	do	do	79½	39½
230 A.	Feb. 20	8	13 13 50	61 18 45	Fine sand	do	81	41½
231 A.	Feb. 20	9	13 12 10	61 17 18	Sand, broken shell	do	80	61½
232 A.	Feb. 20	10	13 06 45	61 06 55	Coral	do	80	62
233 A.	Feb. 21	11	13 07 05	61 06 15	do	do	80	49½
234 A.	Feb. 21	1	13 01 00	61 18 00	Fine sand, black specks	do	80	47
235 A.	Feb. 21	2	12 57 10	61 25 25	Light-brown ooze	Off Bequia	80½	39
236 A.	Feb. 22	3	12 52 30	61 36 00	do	do	79	39
237 A.	Feb. 22	4	12 48 30	61 28 30	Gray ooze	do	79	38½
238 A.	Feb. 23	5	12 46 10	61 23 35	Coral sand	Off Grenadines	79½	56
239 A.	Feb. 23	6	12 46 20	61 25 00	Fine sand, ooze	do	80	45½
240 A.	Feb. 23	7	12 42 45	61 29 15	Coral, broken shell	do	79½	52½
241 A.	Feb. 24	8	12 38 22	61 32 18	Sand, coral	do	80	53
242 A.	Feb. 24	9	12 38 22	61 35 25	Fine sand, ooze	do	80	39½
243 A.	Feb. 24	10	12 30 35	61 35 50	Fine gray sand	do	79½	51½
244 A.	Feb. 24	11	12 12 03	61 45 15	Gray ooze	Off Grenada	72	39
245 A.	Feb. 24	12	12 07 55	61 50 45	do	do	77	39
246 A.	Feb. 25	13	12 05 45	61 45 40	Dark gray ooze	do	79½	56
247 A.	Feb. 25	14	12 05 25	61 47 15	Gray ooze	do	80	53½
248 A.	Feb. 25	15	12 02 35	61 47 15	Fine gray ooze	do	80	53½
249 A.	Feb. 27	16	11 48 15	61 48 45	Coarse sand	do	80	47
250 A.	Feb. 27	17	11 43 15	61 53 00	Coral sand, ooze	do	80½	41½
251 A.	Feb. 27	18	11 35 30	62 03 05	do	do	80½	42
252 A.	Feb. 27	19	11 30 05	62 03 45	Gray ooze	do	80	44½
253 A.	Feb. 27	20	11 25 00	62 04 15	Coral, broken shell	do	79½	58½
254 A.	Feb. 27	21	11 21 00	62 11 00	Sand, shell	do	78½	57
255 A.	Feb. 27	22	11 32 30	62 11 00	Brown ooze	do	78	43½
256 A.	Feb. 28	23	12 07 15	61 47 10	Sand, ooze	do	80	44½
257 A.	Feb. 28	29	12 09 40	61 46 45	Fine sand, ooze	do	80	40½
258 A.	Feb. 28	31	12 03 15	61 46 25	Sand, ooze	do	80	53½
259 A.	Feb. 28	30	12 03 30	61 47 10	do	do	79½	47
260 A.	Mar. 1	32	12 01 45	61 47 25	Fine sand	do	80	62
261 A.	Mar. 1	33	12 03 15	61 48 30	Gray ooze	do	80	53½
262 A.	Mar. 2	34	12 03 55	61 49 40	do	do	80	42½
263 A.	Mar. 2	35	12 05 20	61 49 40	Coarse sand, ooze	do	79½	39½
264 A.	Mar. 2	36	12 04 50	61 51 25	Gray and brown ooze	do	80½	41½
265 A.	Mar. 2	37	12 07 15	61 50 50	Gray ooze	do	81	39½
266 A.	Mar. 3	38	13 07 55	61 05 36	Coral	Off St. Vincent	80	80
267 A.	Mar. 3	39	13 06 18	61 09 30	do	do	80	57½
268 A.	Mar. 3	40	13 05 00	61 13 00	Sand	Off Bequia	80½	66
269 A.	Mar. 3	41	13 04 12	59 36 45	Coral, broken shell	Off Barbados	79½	41½
270 A.	Mar. 5	1	13 03 05	59 36 18	do	do	79½	59½
271 A.	Mar. 5	2	13 00 50	59 36 20	Fine sand	do	79½	53½
272 A.	Mar. 5	3	12 58 33	59 36 45	Fine brown sand	do	80	52½
273 A.	Mar. 5	4	13 03 50	59 37 05	Coral, broken shell	do	79½	61
274 A.	Mar. 5	5	13 03 55	59 38 25	Coral	do	80	58

Dredgings made by the Blake, etc. — Continued.

Serial number.	Line.	Date.	Number of cast.	Latitude N.	Longitude W.	Depth.	Nature of bottom.	Locality.	Temperatures.	
									Surface.	Bottom.
278 Ag.	L	1879.	7	13 04 50	59 37 40	<i>Fath.</i> 69	Coral, shell.	Off Barbados	78	68
279 Ag.	L	Mar. 6	8	13 01 00	59 30 42	118	Coral, broken shell	do	79½	58½
280 Ag.	L	Mar. 6	9	12 57 40	59 36 50	221	Sand	do	80	50½
281 Ag.	L	Mar. 6	10	12 54 48	59 36 30	238	Broken shell	do	80	46½
282 Ag.	L	Mar. 7	11	13 05 20	59 40 00	134	Sand, shell	do	81	56
283 Ag.	L	Mar. 7	12	13 05 05	59 40 50	226	Hard bottom	do	80	49
284 Ag.	L	Mar. 7	13	13 07 10	59 43 50	347	Sand	do	80	44½
285 Ag.	L	Mar. 7	14	13 05 12	59 37 18	13	Coral	do	80	44½
286 Ag.	L	Mar. 8	15	13 10 58	59 38 25	63	do	do	80	44½
287 Ag.	L	Mar. 8	16	13 11 25	59 38 20	7	Coral, sand, broken shell.	do	80	44½
288 Ag.	L	Mar. 8	17	13 11 25	59 45 35	399	Hard	do	80½	40
289 Ag.	L	Mar. 8	18	13 11 25	59 48 15	713	Brown ooze.	do	80	70½
290 Ag.	L	Mar. 9	19	13 11 54	59 38 45	73	Coral, sand, shell.	do	80	49½
291 Ag.	L	Mar. 9	20	13 12 00	59 41 00	210	Coarse sand	do	80	74½
292 Ag.	L	Mar. 9	21	13 13 55	59 38 50	56	Coral, sand, broken shell	do	80	64½
293 Ag.	L	Mar. 9	22	13 14 23	59 39 10	81	do	do	80	54½
294 Ag.	L	Mar. 9	23	13 14 18	59 40 10	136	Hard	do	80½	50½
295 Ag.	L	Mar. 10	24	13 14 18	59 41 12	180	do	do	80	50½
296 Ag.	L	Mar. 10	25	13 05 24	59 38 45	85	do	do	78	61½
297 Ag.	L	Mar. 10	26	13 02 36	59 37 45	123	Rock	do	80½	56½
298 Ag.	L	Mar. 10	27	13 03 28	59 37 40	120	do	do	80½	61
299 Ag.	L	Mar. 10	28	13 05 00	59 39 40	140	Coral, broken shell	do	80½	56½
300 Ag.	L	Mar. 10	29	13 06 30	59 39 20	82	do	do	80½	60

The following stations were occupied by the *Blake* during the dredging cruise of the summer of 1880:

Stations 301 to 308 are on the lines run off the northeastern extremity of George's Bank.

Station 309 is intermediate between the northeastern extremity of George's Bank and the next line run off Newport, which includes stations 310 to 312.

Stations 313 to 318 are in a line normal to the coast in about latitude 32° north.

Stations 319 to 323 are in a line parallel to the coast in the so-called axis of the Gulf Stream.

Stations 324 to 329, south off Cape Hatteras.

Stations 330 to 333, north off Cape Hatteras.

Stations 334 to 339, east off Cape May.

Stations 340 to 347, normal to coast southeast off Montauk Point.

Dredgings by the Blake in 1880.

Serial Number.	Line.	Date.	Number of cast.	Latitude N.			Longitude W.			Depth.	Nature of bottom.	Temperatures.	
				°	'	"	°	'	"			Surface.	Bottom.
		1880.								<i>Fath.</i>		°	°
301 Ag.	A	June 28	3	41	26	55	66	03	00	71	Yellow sand, black specks.	55	42½
302 Ag.	A	June 28	4	41	30	00	66	00	00	73	Yellow sand, black specks, shells.	53	42½
303 Ag.	A	June 28	6	41	34	30	65	54	30	306	Gray sand, black specks, mud.	61	40½
304 Ag.	A	June 28	8	41	35	00	65	57	30	139	No specimen.	62	44
305 Ag.	A	June 28	9	41	33	15	65	51	25	810	Dark-gray mud, sand, stones.	56½	39
306 Ag.	A	June 29	12	41	32	50	65	55	00	524	do	59	39½
307 Ag.	A	June 29	16	41	29	45	65	47	10	980	Dark-gray mud.	68	38
308 Ag.	A	June 29	19	41	24	45	65	35	30	1,242	do	65	38
309 Ag.	A	June 30	22	40	11	40	68	22	00	304	Dark-gray mud, sand.	65	40½
310 Ag.	B	July 1	1	39	59	00	70	18	45	260	Green mud	69½	42
311 Ag.	B	July 1	3	39	59	20	70	11	30	143	Green sand, black specks	70½	45½
312 Ag.	B	July 1	6	39	50	30	70	11	00	466	Dark-green mud, green sand	71½	40
313 Ag.	C	July 12	3	32	31	50	78	45	00	75	Fine gray sand, black specks.	82	61½
314 Ag.	C	July 12	4	32	24	00	78	44	00	142	Green sand, black specks	81	56½
315 Ag.	C	July 12	6	32	18	20	78	43	00	225	Green sand, black specks, broken shell.	80½	48
316 Ag.	C	July 12	9	32	07	00	78	37	30	229	Pebbles	82½	48
317 Ag.	C	July 12	11	31	57	00	78	18	35	334	Hard	85	45
318 Ag.	C	July 12	14	31	48	50	77	51	50	337	Coral, shell	84½	47
319 Ag.	C	July 13	20	32	25	00	77	42	30	262	Coral sand	84	45½
320 Ag.	C	July 13	21	32	33	15	77	30	10	257	Gray sand, black specks, shells	84½	51
321 Ag.	C	July 13	23	32	43	25	77	20	30	233	Globigerina, ooze	84	53½
322 Ag.	C	July 14	29	33	10	00	76	32	15	362	Coral, sand, globigerina, ooze	84½	46½
323 Ag.	C	July 14	31	33	19	00	76	12	30	457	Globigerina, ooze.	83	40
324 Ag.	C	July 14	33	33	27	20	75	53	30	1,386	do	84	
325 Ag.	D	July 14	1	33	35	20	76	00	00	617	do	84½	39
326 Ag.	D	July 14	2	33	42	15	76	00	50	464	do	84½	39½
327 Ag.	D	July 15	9	34	00	30	76	10	30	178	do	83	49½
328 Ag.	E	July 15	1	34	28	45	75	22	50	1,632	do	84½	37
329 Ag.	E	July 15	4	34	49	40	75	14	40	603	do	84½	39½
330 Ag.	E	July 16	13	35	41	03	74	31	00	1,047	Globigerina, ooze, clay.	85	38½
331 Ag.	E	July 16	17	35	44	40	74	40	20	898	Globigerina, ooze	81	39
332 Ag.	E	July 17	21	35	45	30	74	48	00	263	do	79½	41½
333 Ag.	E	July 17	23	35	45	25	74	50	30	65	Clay	79	
334 Ag.	F	July 18	1	38	20	30	73	26	40	395	Globigerina, ooze, clay	78½	41
335 Ag.	F	July 18	4	38	22	05	73	33	40	89	Gray sand, black specks	77½	56½
336 Ag.	F	July 18	5	38	21	50	73	32	00	197	Fine gray sand, mud	77½	45
337 Ag.	F	July 18	6	38	20	08	73	23	20	740	Globigerina, ooze.	79	39½
338 Ag.	F	July 18	8	38	18	40	73	18	10	922	do	79	39
339 Ag.	F	July 18	10	38	16	45	73	10	30	1,186	do	78	39
340 Ag.	G	July 20	2	39	25	30	70	58	40	1,394	do	76½	38
341 Ag.	G	July 20	5	39	38	20	70	56	00	1,241	do	76	38
342 Ag.	G	July 20	6	39	43	00	70	53	25	1,002	Blue clay	76½	39
343 Ag.	G	July 20	8	39	45	40	70	53	00	732	Green sand.	75½	39½
344 Ag.	G	July 21	12	40	01	00	70	58	00	129	do	74½	51
345 Ag.	G	July 21	13	40	10	15	71	04	30	71	Green mud, broken shell, sand	73	51
346 Ag.	G	July 21	14	40	25	35	71	10	30	43½	Green mud	75½	49
347 Ag.	G	July 21	15	40	59	00	71	22	30	24	Coarse black sand, yellow specks.	72½	60

DREDGING STATIONS OF THE CHALLENGER IN THE ATLANTIC OCEAN, 1872 TO 1876.

The British steamer *Challenger* left England for her scientific trip around the world in December, 1872, and returned to England in May, 1876. She was under the command of Captain Nares, and the scientific operations were under the charge of Dr. (afterward Sir) Wyville Thompson.

The serial numbers in the following table are those of the stations at which serial temperatures, trawlings, and dredgings were obtained, not those of the soundings, which had a separate numbering, running up to 504. This table includes only the stations in the Atlantic, and of these only those at which dredgings and trawlings were made are given, except from No. 22 to No. 59 (including all stations in North American waters). For these all stations, which includes also *all* the soundings made, are given, and they are placed upon the accompanying charts. In the ninth column, D. signifies dredging; T. trawling.

Dredging stations of Challenger, 1872 to 1876.

Serial Number.	Date.	Latitude.	Longitude.	Depth.	Nature of bottom.	Temperatures.		Instrument used.	Locality.
						Surface.	Bottom.		
I	1872. Dec. 30	North. 41 58 00	West. 9 42 00	Fath. 1,125	Blue mud.....	o	o	D.	Cape Finisterre to Gibraltar.
Ic	1873. Jan. 1	40 23 00	9 43 00	950	Hard ground....	57	.....	D.	Do.
Id	Jan. 2	39 55 00	10 05 00	1,975	Blue mud.....	57	.....	D.	Do.
II	Jan. 13	38 10 00	9 14 00	470	Green mud.....	57	.....	D.	Do.
IIa	Jan. 13	38 05 00	9 39 00	1,270	Blue mud.....	57	.....	D.	Do.
IIk	Jan. 15	36 58 50	9 14 20	525	do.....	60	54	D.	Do.
III	Jan. 15	37 02 00	9 14 00	900	do.....	60	.....	D.	Do.
IV	Jan. 16	36 25 00	8 12 00	600	do.....	60	.....	D&T	Do.
V	Jan. 28	35 47 00	8 23 00	1,090	Globigerina, ooze	61	38.5	T.	Gibraltar to Madeira.
VI	Jan. 30	36 23 00	11 18 00	1,525	do.....	58	36	T.	Do.
VII	Jan. 31	35 20 00	13 04 00	2,125	do.....	60	37	T.	Do.
VII f	Feb. 2	32 27 00	16 40 30	1,500	Volcanic mud....	63	.....	T.	Do.
VII p	Feb. 10	28 35 00	16 05 00	78	Volcanic sand....	64	.....	D.	Canary Islands.
VIII	Feb. 12	28 03 15	17 27 00	620	Volcanic mud....	64.5	.....	D.	Do.
1	Feb. 15	27 24 00	16 55 00	1,890	Globigerina, ooze	64.5	36.8	D.	Teneriffe to Sombrero Island.
2	Feb. 17	25 52 00	19 22 00	1,945	do.....	67	36.8	D.	Do.
3	Feb. 18	25 45 00	20 14 00	1,525	Hard ground....	65	37	D.	Do.
5	Feb. 21	24 20 00	24 28 00	2,740	Red clay.....	68	37	D.	Do.
8	Feb. 25	23 12 00	32 56 00	2,700	do.....	67	37	D.	Do.
9	Feb. 26	23 23 00	35 11 00	3,150	do.....	69	36.8	D.	Do.
11	Mar. 1	22 45 00	40 37 00	2,575	Globigerina, ooze	72.2	36.5	D.	Do.
12	Mar. 3	21 57 00	43 29 00	2,025	do.....	73	36.9	D.	Do.
13	Mar. 4	21 38 00	44 39 00	1,900	do.....	72	36.8	D.	Do.
14	Mar. 5	21 01 00	46 29 00	1,950	do.....	74	36.8	T.	Do.
16	Mar. 7	20 39 00	50 33 00	2,435	do.....	74	36.2	D.	Do.
18	Mar. 10	19 41 00	55 13 00	2,650	Red clay.....	74	36	D.	Do.
20	Mar. 12	18 56 00	59 35 00	2,975	do.....	75	36	D.	Do.
22	Mar. 14	18 40 00	62 56 00	1,420	Pteropod, ooze..	76	38.4	T.	Do.
23	Mar. 15	18 24 00	63 28 00	450	do.....	76	.....	D.	Off Sombrero.
23a	Mar. 15	18 26 00	63 31 15	460	do.....	76	.....	D.	Do.
23b	Mar. 15	18 28 00	63 35 00	590	do.....	76	.....	D.	Do.
24	Mar. 25	18 38 30	65 05 30	390	do.....	76	.....	D.	St. Thomas to Bermuda.
24a	Mar. 25	18 43 30	65 05 00	625	do.....	76	.....	D.	Do.
25	Mar. 26	19 41 00	65 07 00	3,875	Red clay.....	76	.....	D.	Do.
26	Mar. 27	21 26 00	65 16 00	2,890	do.....	76	.....	.....	Do.
27	Mar. 28	22 49 00	65 19 00	2,960	do.....	75.5	36.2	.....	Do.

Dredging stations of Challenger, etc.—Continued.

Serial Number.	Date.	Latitude.	Longitude.	Depth.	Nature of bottom.	Temperatures.		Instrument used.	Locality.
						Surface.			
	1873.	<i>North.</i>	<i>West.</i>	<i>Fath.</i>		°	°		
28	Mar. 29	24 39 00	65 25 00	2,850	Red clay	75	36.3	D.	St. Thomas to Bermuda.
29	Mar. 31	27 49 00	64 59 00	2,700	do.	72	36.4	D.	Do.
30	Apr. 1	29 05 00	65 01 00	2,600	do.	72	36.5	Do.	Do.
31	Apr. 3	31 24 00	65 00 00	2,475	Globigerina, ooze	69.5	36.5	Do.	Do.
32	Apr. 3	31 49 00	64 55 00	2,250	do.	68	36.7	Do.	Do.
32a	Apr. 3	32 01 00	64 51 00	1,820	do.	68		Do.	Do.
32b	Apr. 3	32 10 00	64 52 00	950	Coral, mud	68		Do.	Do.
32c	Apr. 4	32 17 30	64 39 05	780	do.	67		Do.	Off Bermuda.
32d	Apr. 4	32 19 00	64 40 00	380	do.	67		Do.	Do.
32e	Apr. 4	32 19 30	64 40 35	120	do.	67.5		D.	Do.
32f	Apr. 4	32 20 40	64 38 15	125	Hard ground	67.5		Do.	Do.
32g	Apr. 4	32 21 25	64 37 15	265	do.	68		D.	Do.
53	Apr. 4	32 21 30	64 35 55	435	Coral, mud	68		D.	Do.
33a	Apr. 21	32 31 10	64 42 55	175	Sand	67.2		Do.	Do.
33b	Apr. 21	32 32 30	64 46 00	640	Mud	67.2		Do.	Do.
34	Apr. 21	32 33 55	64 52 18	1,370	do.	67.2		Do.	Do.
35a	Apr. 22	32 39 00	65 06 00	2,450	Globigerina, ooze	67.8	36.5	Do.	Do.
35b	Apr. 22	32 26 00	65 09 00	2,100	do.	68	36.5	Do.	Do.
35c	Apr. 22	32 15 00	65 08 00	1,950	do.	68		Do.	Do.
36	Apr. 22	32 07 25	65 04 00	30	Coral	67.5		D.	Do.
37	Apr. 24	32 18 00	65 38 08	2,650	Globigerina, ooze	68	36.5	D.	Between Bermuda and Halifax.
38	Apr. 25	33 03 00	66 32 00	2,600	do.	70	36.5	Do.	Do.
39	Apr. 27	34 03 00	67 32 00	2,850	Red clay	65	36.5	Do.	Do.
40	Apr. 28	34 51 00	68 30 00	2,675	Blue mud	69.5		D.	Do.
41	Apr. 29	36 05 00	69 54 00	(2,500)	do.	65		Do.	Do.
42	Apr. 30	35 58 00	70 35 00	2,425	Blue mud	65	36.8	Do.	Do.
43	May 1	36 23 00	71 46 00	(2,600)	do.	75	36.8	Do.	Do.
44	May 2	37 25 00	71 40 00	1,700	Blue mud	56.5	36.2	D.	Do.
45	May 3	38 34 00	72 10 00	1,240	do.	49.5	37.2	D.	Do.
46	May 6	40 17 00	66 48 00	1,350	do.	40	37.2	D.	Do.
47	May 7	41 14 00	65 45 00	1,340	do.	42		D.	Do.
48	May 8	43 04 00	64 05 00	51	Rock	38		D.	Do.
49	May 20	43 03 00	63 39 00	85	Gravel, stones	40.5	35	D.	Do.
50	May 21	42 08 00	63 39 00	1,250	Blue mud	45	38	D.	Do.
51	May 22	41 19 00	63 12 00	2,020	do.	59	36	Do.	Do.
52	May 23	39 44 00	63 22 00	2,800	do.	67.2	36.2	Do.	Do.
52a	May 24	38 16 00	63 17 00		do.	73		Do.	Do.
53	May 26	36 30 00	63 40 00	2,650	Red clay	73	36.3	Do.	Do.
54	May 27	34 51 00	63 59 00	2,650	do.	70.5		T.	Do.
55	May 28	33 20 00	64 37 00	2,500	Globigerina, ooze	70.5	36.2	Do.	Do.
55a	May 28	32 46 00	64 39 00	1,775	do.	70.5		Do.	Do.
55b	May 29	32 07 35	64 53 45	1,525	Coral, mud	72		D.	Off Bermuda.
56	May 29	32 08 45	64 59 35	1,075	do.	72.5	38.2	D.	Do.
56a	May 29	32 10 45	64 58 20	506	do.	72.5		D.	Do.
57	May 30	32 11 07	65 03 20	690	do.	72.5		Do.	Do.
57a	May 30	32 09 30	65 07 35	1,250	Coral, mud	73		D.	Do.
57b	May 30	32 09 45	65 10 50	1,575	do.	73		T.	Do.
58	June 13	32 37 00	64 21 00	1,500	Globigerina, ooze	73.5	37.2	Do.	Bermuda to Azores.
59	June 14	32 54 00	63 22 00	2,360	do.	74	36.3	Do.	Do.
60	June 16	34 28 00	58 56 00	2,575	Red clay	71.5	36.2	T.	Do.
61	June 17	34 54 38	56 38 00	2,850	Red mud	71	36.2	T.	Do.
63	June 19	35 29 00	50 53 00	2,750	Red clay	71		T.	Do.
64	June 20	35 35 00	50 27 00	(2,700)	do.	75		D.	Do.
68	June 24	38 03 19	39 19 00	2,175	Globigerina, ooze	70	36.2	T.	Do.
69	June 25	38 23 00	37 21 00	2,200	do.	71	36.2	T.	Do.
70	June 26	38 25 00	35 50 00	1,675	do.	70		T.	Do.
71	June 27	38 18 00	34 48 00	1,675	do.	71	36.8	T.	Do.
73	June 30	38 30 00	31 14 00	1,000	Pteropod, ooze	69	39.4	D.	Do.
75	July 2	38 38 00	28 23 30	450	Volcanic mud	70		D.	Off Azores.
76	July 3	38 11 00	27 09 00	900	Pteropod, ooze	70	40	D.	Do.
78	July 10	37 26 00	25 13 00	1,000	Volcanic mud	71		D.	Do.
79	July 11	36 21 00	23 51 00	2,025	Globigerina, ooze	71.5	35.9	D.	Azores to Maderia.
83	July 15	33 13 00	18 13 00	1,650	do.	71	37	D.	Do.
85	July 19	28 42 00	18 06 00	1,125	Volcanic mud	69.2		D.	Maderia to Cape de Verdes.
87	July 21	25 49 00	20 12 00	1,675	Rock	72		D.	Do.
89	July 23	22 18 00	22 02 00	2,400	Globigerina, ooze	73.5	36.6	T.	Do.
92	July 26	17 54 00	24 41 00	1,975	do.	74.7		D.	Do.
98	Aug. 14	9 21 00	18 28 00	1,750	do.	78.2	36.7	D.	Cape de Verdes to St. Paul's Rocks.
101	Aug. 19	5 48 00	14 20 00	2,500	Blue mud	79.2	36.4	T.	Do.
104	Aug. 23	2 25 00	20 01 00	2,500	Globigerina, ooze	78	36.6	T.	Do.

Dredging stations of Challenger, etc.—Continued.

Serial Number.	Date.	Latitude.	Longitude.	Depth.	Nature of bottom.	Temperatures.		Instrument used.	Locality.
						Surface.	Bottom.		
	1873.	<i>North.</i>	<i>West.</i>	<i>Fath.</i>		°	°		
106	Aug. 25	1 47 00	24 26 00	1,850	Globigerina, ooze	78.8	36.6	T.	Cape de Verdes to St. Paul's Rocks.
107	Aug. 26	1 22 00	26 36 00	1,500	do.	78.8	37.9	T.	Do.
109	Aug. 28	0 55 38	29 22 35	104	Hard ground	77.7	.....	D.	Do.
		<i>South.</i>							
120	Sept. 9	8 37 00	34 28 00	675	Red mud	78	.....	T.	Between Pernambuco and Bahia.
121	Sept. 9	8 28 00	34 31 00	500	do.	78	.....	T.	Do.
122	Sept. 10	9 05 00	34 50 00	350	do.	77.5	.....	T.	Do.
122a	Sept. 10	9 10 00	34 52 00	120	do.	77.5	.....	T.	Do.
122b	Sept. 10	9 09 00	34 53 00	32	do.	77.5	.....	T.	Do.
122c	Sept. 10	9 10 00	34 49 00	400	do.	77.5	.....	T.	Do.
124	Sept. 11	10 11 00	35 22 00	1,600	do.	77.5	.....	T.	Do.
126	Sept. 12	10 46 00	36 08 00	770	do.	77	.....	T.	Do.
126a	Sept. 12	10 45 00	36 09 00	700	do.	77	.....	T.	Do.
129	Sept. 30	20 13 00	35 19 00	2,150	do.	74	34.2	D.	Bahia to Tristan da Cunha.
130	Oct. 3	26 15 00	32 56 00	2,350	Red clay	69	34.7	T.	Do.
131	Oct. 6	29 35 00	28 09 00	2,275	Globigerina, ooze	65	34.6	T.	Do.
133	Oct. 11	35 41 00	20 55 00	1,900	do.	58	35.4	T.	Do.
134	Oct. 14	36 12 00	12 16 00	2,025	do.	53.5	36	D.	Off Tristan da Cunha.
135a	Oct. 16	37 16 50	12 45 15	75	Hard ground, shells, gravel.	54	.....	D.	Do.
135c	Oct. 17	37 25 30	12 28 30	110	do.	54	.....	D.	Do.
135d	Oct. 17	37 25 00	12 30 30	72	do.	54	.....	D.	Do.
135e	Oct. 18	37 21 00	12 22 30	1,000	Hard ground, shells, gravel.	53.5	.....	D.	Do.
135f	Oct. 18	37 14 45	12 20 15	1,100	Hard ground	53.5	.....	D.	Do.
135g	Oct. 18	37 10 50	12 18 30	550	do.	54	.....	D.	Do.
136	Oct. 20	36 43 00	7 13 00	2,100	do.	54	35.2	D.	Tristan da Cunha to south of Cape of Good Hope.
		<i>East.</i>	<i>West.</i>						
137	Oct. 23	35 59 00	1 34 00	2,550	Red clay	56.1	34.5	D.	Do.
141	Dec. 17	34 41 00	18 36 00	98	Green sand	66.5	49.5	D.	Do.
142	Dec. 18	35 04 00	18 37 00	150	do.	65.5	47	D.	Do.
143	Dec. 19	36 48 00	19 24 00	1,900	Globigerina, ooze	73	35.6	D.	Do.
313	1876. Jan. 20	52 20 00	67 39 00	55	Sand	48.2	47.8	T.	Straits of Magellan to Falkland Islands.
314	Jan. 21	51 35 00	65 39 00	70	do.	48	46	T.	Do.
314a	Jan. 22	51 24 00	61 46 00	110	Hard ground	49	41.8	T.	Do.
315	Jan. 26	51 40 00	57 50 00	12	Sand, gravel	50	.....	D.	Do.
316	Feb. 3	51 32 00	58 06 00	4	Mud	51.2	.....	D.	Falkland Islands to Rio de la Plata.
317	Feb. 8	48 37 00	55 17 00	1,035	Hard ground, gravel.	46.7	35.7	T.	Do.
318	Feb. 11	42 32 00	56 29 00	2,040	Blue mud	57.5	33.7	T.	Do.
320	Feb. 14	37 17 00	53 52 00	600	Green sand	67.5	37.2	T.	Do.
321	Feb. 25	35 02 00	55 15 00	13	Mud	73.5	.....	T.	Do.
322	Feb. 26	35 20 00	53 42 00	21	Sand, shells	71.5	.....	T.	Do.
323	Feb. 28	35 39 00	50 47 00	1,900	Blue mud	73.5	33.1	T.	Rio de la Plata to Tristan da Cunha.
324	Feb. 29	36 09 00	48 22 00	2,800	do.	71.5	32.6	T.	Do.
325	Mar. 2	36 44 00	46 16 00	2,650	do.	70.8	32.7	T.	Do.
331	Mar. 9	37 47 00	30 20 00	1,715	Globigerina, ooze	64.5	35.4	T.	Do.
332	Mar. 10	37 29 00	27 31 00	2,200	do.	64	34	T.	Do.
333	Mar. 13	35 36 00	21 12 00	2,025	do.	67	35.3	T.	Do.
334	Mar. 14	35 45 00	18 31 00	1,915	do.	68.5	35.8	T.	Do.
335	Mar. 16	32 24 00	13 05 00	1,425	Pteropod, ooze	73.5	37	D.	Tristan da Cunha to Ascension Islands.
337	Mar. 19	24 38 00	13 36 00	1,240	do.	77	37.2	D.	Do.
338	Mar. 21	21 15 00	14 02 00	1,990	Globigerina, ooze	76.5	36.2	D.	Do.
343	Mar. 27	8 03 00	14 27 00	425	Volcanic sand	80.8	40.3	D.	Do.
344	Apr. 3	7 54 20	14 28 20	420	do.	82	.....	D.	Ascension towards Cape de Verdes.
346	Apr. 6	2 42 00	14 41 00	2,350	Globigerina, ooze	82.7	34	D.	Do.
348	Apr. 9	<i>North.</i> 3 10 00	14 51 00	(2,450)	.....	84	.....	D.	Do.

DEEP-SEA DREDGINGS OF LE TRAVAILLEUR.

Abstract of deep-sea dredgings in the Bay of Biscay, the Atlantic Ocean, and the Mediterranean, by the French dispatch boat Le Travailleur.

[Under the command of M. E. F. Richards, Lieutenant de Vaisseau, by a commission of naturalists, of which M. Milne Edwards was president.]

BAY OF BISCAY IN 1880.

Dates.	Number of dredging.	Positions.		Soundings.	Character of bottom.
		Latitude.	Longitude.		
		North. ° ' "	West. ° ' "	Faths.	
July 17	1	43 38 00	1 55 15	230	Soft gray mud.
Do	2	43 36 00	1 54 45	557	Soft yellowish mud.
Do	3	43 35 25	1 53 40	364	Mud.
July 19	4	43 33 10	2 10 35	181	Mud.
Do	5	43 33 30	2 11 45	177	Yellowish muddy sand.
Do	6	43 36 55	2 13 05	313	Gray mud.
Do	7	43 37 55	2 14 45	205	Rock.
Do	8	43 38 15	2 15 00	338	Gray mud.
Do	9	43 39 55	2 16 45	539	Mud.
Do	10	43 40 35	2 15 05	517	Two kinds of mud, upper layer yellowish.
Do	11	43 41 45	2 14 30	913	Soft mud.
Do	12	43 33 30	2 25 00	252	Mud.
July 20	13	43 37 05	2 49 10	67	Mud and gravel.
Do	14	43 36 45	3 02 50	384	Sand and mud.
Do	15	43 41 15	3 02 45	1,340	Mud.
Do	16	43 42 30	3 01 15	1,450	Mud.
Do	17	43 39 30	3 17 20	538	Mud.
July 22	18	43 47 00	3 41 45	1,042	No bottom.
Do	19	43 44 30	3 38 20	1,235	Mixed sand and mud.
Do	20	43 46 10	3 35 55	1,481	Mud.
July 23	21	43 38 00	4 09 35	658	Mud.
Do	22	43 38 25	4 08 25	740	Mud.
Do	23	43 35 30	4 04 45	605	Mud.
Do	24	43 32 40	4 10 45	89	Sand, gravel, shell.
Do	25	43 35 10	3 44 15	171	Sand, gravel, shell.
Do	26	43 35 30	4 28 35	361	Mud.
Do	27	43 37 25	4 31 45	104	Speckled sand.
Do	28	43 39 30	4 34 45	110	Sand.
Do	29	43 40 15	4 37 50	127	Rock.
Do	30	43 39 45	4 46 35	91	Black sand.
Do	31	43 39 45	4 50 55	91	Speckled sand shell.
Do	32	43 45 00	5 02 25	91	Black sand.
July 24	33	43 49 30	5 11 40	84	Speckled sand, gravel.
Do	34	43 54 30	5 20 35	87	Black sand, gravel.
Do	35	43 57 30	5 27 15	96	Black sand, gravel.
Do	36	43 38 30	5 21 15	77	Black sand.
Do	37	43 38 30	5 05 05	217	Sand, gravel.
Do	38	43 41 30	4 23 45	817	Sand, eight different layers.
Do	39	43 36 40	4 02 15	651	Mud.
July 26	40	43 39 50	3 32 15	1,044	Mud.
Do	41	43 39 05	3 27 45	1,072	Mud.
Do	42	43 36 45	3 29 45	744	Mud.
Do	43	43 35 00	3 27 20	68	Rock, gravel.
Do	44	43 34 30	3 23 05	111	Mixed sand and mud.
July 27	45	43 34 05	3 16 45	81	Mixed gray sand and mud.
Do	46	43 33 25	3 11 00	68	Broken shells.
Do	47	43 37 20	3 09 15	664	Mud.
Do	48	43 36 30	3 15 55	344	Mud.
Do	49	43 38 00	3 04 55	601	Mud.
Do	50	43 38 00	2 54 55	592	Mud.
Do	51	43 33 20	2 55 00	171	Mixed sand and mud.
Do	52	43 34 15	3 00 00	113	Speckled sand, gravel.
Do	53	43 31 10	2 55 40	361	Mud.
Do	54	43 34 20	2 54 15	183	Sand.
Do	55	43 35 40	2 46 30	591	Mud.
Do	56	43 36 45	2 45 15	525	Mud.
Do	57	43 39 25	2 45 10	541	Mud.
Do	58	43 40 00	2 39 15	1,105	No bottom.
July 28	59	43 40 35	2 14 35	656	Mud.
Do	60	43 40 55	2 11 35	500	Mud.
Do	61	43 41 20	2 02 35	96	Rock.
Do	62	43 41 20	2 01 35	115	Mud.
Do	63	43 46 00	2 01 45	91	Sand.
Do	64	43 45 30	2 07 15	410	Mud.
Do	65	43 46 00	2 06 45	334	Shell and coral.
Do	66	43 46 50	2 06 30	445	Soft mud.
Do	67	43 38 45	2 08 25	634	Mud.

Abstract of deep-sea dredgings in the Bay of Biscay, etc.—Continued.

BAY OF BISCAY IN 1880—Continued.

Dates.	Number of dredging.	Positions.		Soundings.	Character of bottom.
		Latitude.	Longitude.		
		<i>North.</i>	<i>West.</i>	<i>Faths.</i>	
		° ' "	° ' "		
July 29	68	43 32 35	2 09 30	167	Mud.
Do.	69	43 36 20	2 17 00	308	Mud.
July 30	70	43 37 45	2 30 00	930	Mud.
Do.	71	43 37 30	2 06 20	625	Mud.
Do.	72	43 33 45	1 59 15	349	Mud.
Do.	73	43 32 40	1 52 50	77	Fine sand.
Do.	74	43 35 00	1 52 55	93	Sand.
Do.	75	43 36 30	1 53 35	231	Mud.
Do.	76	43 37 30	1 53 45	419	Mud.
Do.	77	43 37 50	1 51 55	449	Mud.
Do.	78	43 38 00	1 47 30	155	Mud.
Do.	79	43 40 15	1 50 55	77	Sand.
Do.	80	43 41 25	2 02 10	91	Sand.
July 31	81	43 42 25	1 53 00	77	Mud.
Do.	82	43 41 15	1 47 00	78	Mud.
Do.	83	43 40 30	1 45 15	73	Mud.
Do.	84	43 39 00	1 45 10	74	Mud.
Do.	85	43 37 40	1 45 35	204	Mud.
Do.	86	43 35 40	1 43 55	336	Mud.
Do.	87	43 33 55	1 44 05	71	Mud.
Do.	88	43 33 30	1 42 05	66	Sand.
Do.	89	43 36 00	1 42 05	73	Sand.
Do.	90	43 37 15	1 42 05	74	Mixed sand and mud.
Do.	91	43 38 25	1 42 00	239	Soft mud.
Do.	92	43 39 20	1 41 40	135	Mud.
Do.	93	43 40 10	1 40 55	79	Mixed sand and mud.
Do.	94	43 39 30	1 38 25	314	Mixed sand and mud.
Do.	95	43 38 20	1 38 30	74	Mud.
Do.	96	43 38 15	1 40 05	149	Mud.
Do.	97	43 39 05	1 40 25	151	Rock.
Do.	98	43 40 25	1 39 55	79	Sand, rock.
Do.	99	43 40 30	1 38 30	179	Gray sand, rock.
Do.	100	43 40 35	1 38 10	238	Mud.
Do.	101	43 40 30	1 35 10	179	Soft green mud.
Do.	102	43 36 50	1 57 45	612	Mud.
Do.	103	43 35 40	1 55 30	514	Mud.

IN THE ATLANTIC IN 1881.

FIRST SERIES.					
June 13	1	43 00 40	9 37 25	1,103	Sand and rock.
June 14	2	41 43 00	9 19 25	584	Sand, pebbles.
June 15	3	39 47 50	9 51 45	1,808	Gray mud.
June 16	4	38 08 50	9 43 15	1,369	Gray mud.
Do.	5	38 05 00	9 41 45	1,731	Gray mud.
June 17	6	36 55 20	9 21 45	1,020	Gray mud.
June 18	7	36 38 20	7 03 41	291	Soft mud.
July 31	30	35 24 45	7 58 52	656	Soft mud.
Do.	31	36 27 15	8 12 41	756	Soft mud.
Do.	31	36 27 15	8 12 41	1,148	Soft mud.
Aug. 1	32	37 15 20	9 24 55	618	Soft mud.
Do.	32	37 15 20	9 24 55	563	Soft mud.
Aug. 5	33	38 15 20	9 17 45	1,014	Soft mud.
Do.	33	38 15 20	9 17 45	1,013	Soft mud.
Aug. 6	34	38 18 00	9 24 15	669	Soft mud.
Do.	35	38 18 30	9 26 25	747	Soft mud.
Aug. 7	36	39 33 00	9 51 15	1,416	Soft mud.
Do.	36	39 31 00	9 58 45	1,455	Soft mud.
Aug. 14	37	44 10 15	8 17 45	219	Gravel, sand, and shell.
Do.	38	44 11 00	8 13 45	1,048	Mud.
Aug. 15	39	44 05 00	7 06 25	670	Black sand, coral.
Do.	39	44 04 45	7 03 15	521	Black sand, coral.
Do.	39	44 05 00	7 09 15	547	Gravel, coral.
Do.	39	44 05 45	7 12 15	567	Black sand, coral.
Do.	40	44 05 00	7 14 45	214	Black sand.
Aug. 16	41	44 02 15	7 07 15	598	Sand and mud.
Do.	42	44 01 20	7 04 45	490	Mud and coral.
Do.	43	44 00 50	6 58 00	402	Mixed sand and mud.
Do.	44	44 00 10	6 48 00	954	Mud.
Aug. 17	45	44 48 30	4 40 15	2,755	Mud with foraminifera.

Abstract of deep-sea dredgings in the Bay of Biscay, etc.—Continued.

IN THE MEDITERRANEAN IN 1881.

Dates.	Number of dredging.	Positions.		Soundings.	Character of bottom.
		Latitude.	Longitude.		
FIRST SERIES.		<i>North.</i>	<i>West.</i>	<i>Faths.</i>	
		° ' "	° ' "		
June 22	8	36 31 45	2 11 35	167	Granulated mud.
Do.	9	36 31 55	2 07 55	481	Gray and yellow mud.
Do.	9	36 31 55	2 06 55	552	Gray and yellow mud.
June 23	10	37 27 55	0 13 35	1,392	Granulated mud.
			<i>East.</i>		
June 24	11	38 03 00	0 07 30	87	Yellow mud.
June 25	12	39 34 15	1 39 25	831	Fine yellow mud.
June 27	13	42 01 30	4 42 00	1,293	Granulated mud.
SECOND SERIES.					
July 4	1	43 02 57	5 18 45	303	Mud.
Do.	2	42 57 15	5 19 12	589	Mud.
July 5	3	42 52 40	5 18 45	634	Mud.
Do.	4	42 50 25	5 17 40	1,105	Mud.
Do.	4	42 52 33	5 20 15	1,018	Mud.
Do.	5	42 54 04	5 26 27	1,020	Mud.
July 6	6	42 59 20	5 41 05	295	Mud.
Do.	6	42 59 50	5 41 30	367	Mud.
Do.	7	43 00 20	5 46 27	411	Mud.
Do.	8	43 01 00	5 48 35	168	Mud with a few rocks.
Do.	9	43 00 35	5 42 15	248	Coral.
July 7	10	43 23 05	6 58 35	328	Mud.
Do.	11	43 34 34	7 12 38	412	Mud.
Do.	12	43 37 05	7 11 32	473	Sticky mud.
July 9	13	43 40 20	7 17 21	372	Mud.
Do.	13	43 41 32	7 17 12	202	Mud.
Do.	14	43 41 38	7 17 51	156	Mud.
Do.	14	43 41 21	7 19 05	35	Mud.
July 11	15	43 40 36	7 20 23	22	Coral.
Do.	15	43 40 36	7 20 23	55	Mud.
Do.	15	43 41 16	7 17 49	102	Black mud.
Do.	16	43 24 35	7 22 15	1,131	Black mud.
July 12	17	43 15 00	7 21 15	1,454	Black mud.
Do.	17	43 00 15	7 32 45	1,451	Black mud.
July 13	18	41 52 40	8 22 55	1,348	Mud.
Do.	18	41 52 40	8 22 55	846	Mud.
Do.	19	41 52 45	8 29 10	295	Coral.
July 15	20	41 52 35	8 35 50	14	Coral.
Do.	20	41 53 50	8 35 55	25	Coral.
Do.	20	41 52 52	8 31 40	38	Coral.
Do.	21	41 49 52	8 34 35	397	Gray and yellow mud.
Do.	22	41 49 20	8 35 05	495	Gray and yellow mud.
Do.	23	41 42 35	8 29 25	153	Mud.
July 16	24	41 22 15	9 07 15	42	Gravel, coral.
Do.	24	41 22 15	9 07 15	30	Gravel, coral.
Do.	24	41 22 15	9 07 15	36	Gravel, coral.
Do.	24	41 22 15	9 07 15	41	Gravel, coral.
July 18	25	42 59 45	5 13 55	689	Mud.
Do.	25	41 01 10	5 13 55	555	Mud.
Do.	25	43 03 50	5 13 55	231	Mud.
Do.	25	43 02 55	5 13 55	208	Mud.
Do.	25	43 02 30	5 13 55	354	Mud.
			<i>West.</i>		
July 25	26	35 45 30	1 08 10	492	Soft mud.
July 26	27	35 30 00	2 58 15	60	Mixed sand and mud.
Do.	27	35 32 00	3 13 05	238	Mixed sand and mud.
Do.	27	35 31 45	3 11 25	288	Mud.
July 27	28	35 21 30	4 28 35	176	Mud.
Do.	28	35 21 20	4 32 45	203	Mud.
Do.	28	35 23 00	4 34 00	236	Mud.
Do.	29	35 24 20	4 39 15	230	Mud.

DREDGINGS OF THE TRAVAILLEUR IN 1882.

The *Travailleur* in 1882 continued the series of dredgings commenced in 1880 and 1881, and extended them from Cape Penas, on the north coast of Spain, along the coast of Portugal, the Gulf of Cadiz, and the coast of Morocco to the Canary Islands, through the strait of Bocayna (between Fuerteventura and Lanzarote), to Madeira, Lisbon, and back to Rochefort. Twenty-one hauls of the dredge were made, in from 100 to 3,700 meters (55 to 2,023 fathoms) of water. M. Alphonse Milne-Edwards was in principal charge of the natural history observations. A general report of the expedition was published in the *Revue Maritime et Coloniale*, February, 1883 (Tome LXXVI, page 454), and the details of position, etc., in the *Annales Hydrographiques*, vol. 5, p. 4, 1883.

The number of the *Annales Hydrographiques* containing these positions was found to be wanting in all the accessible libraries in the United States, and although ordered from France, failed to arrive in time to allow the positions to be included in this paper.

DREDGINGS OF THE FRENCH STEAMER TALISMAN, 1883.

The *Talisman* continued the researches carried on by the *Travailleur* in 1880-'82, and extended from the coast of Portugal along the west coast of Africa, touching at the Canaries, to about 17° N. latitude; thence westward to the Cape de Verde Islands; thence northwestwardly to latitude $31^{\circ} 34'$, longitude $41^{\circ} 15'$; thence northeasterly to the Azores, and thence back to France.

Serial number.	Date.	North latitude.	West longitude, Greenwich.	West longitude, Paris.	Depth.	Kind of bottom.	Temperatures.				Locality.
							Surface.	Bottom.	Surface.	Bottom.	
					Meters.		° F.	° F.	° C.	° C.	
1	June 4	41 30	9 37	11 57	1,923	Mud	62.6	41.0	17.0	5.9	Coast of Portugal.
2	June 6	36 53	8 32	10 52	54	Mud, shells	63.5	59.9	17.5	15.5	Bay of Cadiz.
3	June 6	36 53	8 28	10 48	106	do	63.5	61.7	17.5	16.5	Do.
4	June 6	36 53	8 24	10 44	118	do	63.5	59.9	17.5	15.5	Do.
5	June 9	36 26	6 27	9 33	60	do	.....	.....	.....	.....	Do.
6	June 9	36 21	6 41	9 47	126	do	.....	.....	.....	.....	Do.
7	June 9	36 21	6 41	9 04	69	Mud	.....	.....	.....	.....	Do.
8	June 10	36 19	6 44	9 03	174	do	.....	.....	.....	.....	South of Bay of Cadiz.
9	June 10	35 35	6 40	9 00	295	do	.....	.....	.....	.....	Cape Spartel.
10	June 10	35 31	6 43	9 03	622	do	69.4	53.6	20.8	12.0	Do.
11	June 10	35 26	6 49	9 09	392	Mud, corals	69.4	50.9	20.8	10.5	Do.
12	June 11	35 21	7 05	9 25	593	do	71.6	50.0	22.0	10.0	Coast of Morocco, from Cape Spartel to Cape Blanco.
13	June 11	35 07	7 18	9 38	1,216	Mud, corals	71.6	50.0	22.0	10.0	Do.
14	June 12	34 20	8 08	10 28	2,516	Mud	69.8	39.2	21.0	4.0	Do.
15	June 12	33 57	8 27	10 47	1,425	do	68.9	43.5	20.5	7.5	Do.
16	June 13	34 01	8 32	10 52	2,190	do	71.6	40.1	22.0	4.5	Do.
17	June 14	33 33	8 59	11 19	550	do	66.2	55.4	19.0	13.0	Do.
18	June 14	33 33	8 59	11 19	301	do	66.2	55.4	19.0	13.0	Do.
19	June 14	33 42	9 01	11 21	503	Mud, sponges	70.7	50.0	21.5	10.0	Do.
20	June 14	33 43	9 02	11 22	604	do	70.7	43.7	21.5	6.5	Do.
21	June 14	33 46	9 02	11 22	721	Mud	67.1	46.4	19.5	8.0	Do.
22	June 14	33 47	9 03	11 23	894	do	67.1	43.7	19.5	6.5	Do.
23	June 15	33 16	8 53	11 13	66	Rocks, shells	.....	.....	.....	.....	Do.
24	June 15	33 16	8 54	11 14	120	Shells, sand	.....	.....	.....	.....	Do.
25	June 15	33 14	9 18	11 38	410	Sand, mud	.....	.....	.....	.....	Coast of Morocco, from Cape Blanco to Mogador.
26	June 15	33 08	9 23	11 43	723	Mud	.....	.....	.....	.....	Do.
27	June 15	33 10	9 29	11 49	1,400	do	.....	.....	.....	.....	Do.
28	June 15	33 12	9 33	11 53	2,000	do	.....	.....	.....	.....	Do.
29	June 16	32 46	9 56	12 16	2,600	do	68.9	38.3	20.5	3.5	Do.
30	June 16	32 44	9 56	12 16	2,400	do	76.1	38.3	24.5	3.5	Do.
31	June 16	32 40	9 50	12 10	1,917	do	.....	.....	.....	.....	Do.
32	June 16	32 38	9 49	12 09	1,435	do	.....	.....	.....	.....	Do.
33	June 17	32 34	9 49	12 09	1,590	Greasy mud	.....	.....	.....	.....	Do.
34	June 17	32 31	9 48	12 08	869	Reddish mud	.....	.....	.....	.....	Do.
35	June 17	32 29	9 47	12 07	738	Mud	65.0	51.8	20.0	11.0	Do.
36	June 17	32 27	9 55	12 15	834	Red mud	.....	.....	.....	.....	Do.
37	June 18	32 04	10 23	12 43	1,123	do	.....	.....	.....	.....	Do.
38	June 18	32 04	10 23	12 43	2,105	Mud	.....	.....	.....	.....	Do.

Dredgings by the French steamer *Talisman*, 1883—Continued.

Serial number.	Date.	North latitude.	West longitude, Greenwich.	West longitude, Paris.	Depth.	Depth.	Kind of bottom.	Temperatures.				Locality.
								Surface.	Bottom.	Surface.	Bottom.	
		° ' "	° ' "	° ' "	Fathoms.	Meters.		° F.	° F.	° C.	° C.	
36	June 18	31 59	10 09	12 29	573	1,048	Mud	.....	.....	.....	.....	Coast of Morocco, from Cape Blanco to Mogador.
37	June 21	31 34	10 21	12 41	499	912	Red mud	.....	.....	.....	.....	Do.
38	June 21	31 31	10 27	12 47	574	1,050	do	.....	.....	.....	.....	Do.
39	June 22	31 31	11 19	13 39	1,371	2,525	Red and yellow mud	.....	.....	.....	.....	Do.
40	June 22	30 41	11 17	13 37	1,512	2,765	Red mud	.....	.....	.....	.....	Do.
41	June 23	30 09	11 41	14 01	1,209	2,210	Mud	71.6	39.2	22.0	4.0	Mogador to Canaries.
42	June 23	30 08	11 42	14 01	1,203	2,200	Greasy mud	.....	.....	.....	.....	Do.
43	June 23	30 08	11 45	14 05	1,203	2,200	do	70.7	39.2	21.5	4.0	Do.
44	June 23	30 03	11 42	14 02	1,210	2,212	Gray mud, broken shells	65.7	41.0	18.7	5.0	Do.
45	June 24	30 01	11 46	14 06	1,157	2,115	do	.....	.....	.....	.....	Do.
46	June 24	30 01	11 41	14 01	1,151	2,104	do	.....	.....	.....	.....	Do.
47	June 25	29 58	11 41	14 04	1,135	2,075	do	67.1	41.0	19.5	5.0	Do.
48	June 25	29 52	11 47	14 07	1,139	2,083	do	.....	.....	.....	.....	Do.
49	June 26	29 08	12 26	14 46	676	1,235	Soft yellow mud	68.5	47.3	20.3	8.5	Do.
50	June 26	29 03	12 28	14 48	667	1,220	Yellow mud	71.6	46.4	22.0	8.0	Do.
51	June 26	29 02	12 29	14 49	636	1,163	Mud	70.7	47.7	21.5	8.7	Do.
52	June 26	29 01	12 31	14 51	645	1,180	do	70.7	47.3	21.5	8.5	Do.
53	June 27	28 37	13 02	15 22	473	1,865	Yellow mud	69.8	44.6	21.0	7.0	Do.
54	June 27	28 35	13 10	15 30	533	973	do	70.2	45.0	21.2	7.2	Do.
55	June 27	28 35	13 16	15 36	677	1,238	do	72.5	45.0	22.5	7.2	Do.
56	June 27	28 33	13 19	15 39	518	946	Sand, black specks, rocks	72.5	46.4	22.5	8.0	Do.
57	June 27	28 33	13 19	15 39	497	905	Pebbles and rocks	.....	.....	.....	.....	Canary Islands.
58	June 27	28 35	13 19	15 39	30-259	30-259	Sand, shells, pebbles	.....	.....	.....	.....	Do.
59	June 28	28 48	13 46	16 06	19-142	162	Sand and rocks	.....	.....	.....	.....	Do.
60	.....	28 49	13 53	16 13	88	162	Muddy sand, rocks	.....	.....	.....	.....	Do.
61	.....	28 48	14 01	16 21	495-678	905-1,240	.....	.....	.....	.....	.....	Do.
62	.....	28 48	14 01	16 21	1,094-1,102	2,000-2,015	Yellow mud	73.4	38.3	23.0	3.5	From Canaries to mouth of Senegal, near coast of Africa.
63	July 7	27 32	14 09	16 29	1,101	2,013	.....	.....	.....	.....	.....	Do.
64	July 7	27 31	14 08	16 28	1,080	1,975	do	73.0	39.2	22.8	4.0	Do.
65	July 7	27 31	14 07	16 27	1,049	1,918	do	73.0	39.4	22.8	4.1	Do.
66	July 8	26 18	14 53	17 13	421	782	Sand, shells, corals	.....	.....	.....	.....	Do.
67	July 8	26 17	14 52	17 12	350	640	Sand, corals	.....	.....	.....	.....	Do.
68	July 8	26 16	14 51	17 11	194	355	Sand, shells, corals	70.7	49.1	21.5	9.5	Do.
69	July 8	26 13	14 50	17 10	136	250	do	.....	.....	.....	.....	Do.
70	July 8	26 07	14 48	17 08	96	173	do	.....	.....	.....	.....	Do.
71	July 8	26 04	14 45	17 05	56	102	do	.....	.....	.....	.....	Do.
72	July 9	25 41	15 56	18 16	224	410	Muddy sand, corals	.....	.....	.....	.....	Do.
73	July 9	25 39	15 58	18 18	382	698	Muddy sand, corals, shells	.....	.....	.....	.....	Do.

74	July 9	25 39	15 58	18 18	350	640	do	Do.		
75	July 8	25 39	16 02	18 22	482	882	do	Do.		
76	July 9	25 39	16 06	18 26	785	1,455	do	Do.		
77	July 9	25 38	16 09	18 29	617	1,128	Gray mud	Do.		
78	July 9	25 38	16 11	18 31	650	1,193	do	Do.		
79	July 10	25 02	16 51	19 11	2,325	2,325	Yellow mud	Do.		
80	July 10	25 01	16 53	19 13	1,377	2,518	Gray mud	Do.		
81	July 10	25 01	16 55	19 15	1,443	2,698	Yellow mud	Do.		
82	July 10	25 00	17 00	19 20	1,484	2,713	do	Do.		
83	July 11	23 57	17 12	19 32	1,766	1,400	do	Do.		
84	July 11	23 55	17 15	19 35	785	1,435	Gray mud	Do.		
85	July 11	23 53	17 16	19 36	674	1,292	do	Do.		
86	July 11	23 53	17 17	19 37	684	1,250	do	Do.		
87	July 11	23 50	17 17	19 37	693	1,139	do	Do.		
88	July 12	22 57	17 30	19 50	510	932	Greenish muddy sand	Do.		
89	July 12	22 57	17 31	19 51	508	930	Green, muddy sand	Do.		
90	July 12	22 54	17 29	19 49	508	890	do	Do.		
91	July 12	22 54	17 26	19 46	470	800	do	Do.		
92	July 12	22 52	17 23	19 43	434	830	do	Do.		
93	July 12	22 49	17 21	19 41	438	800	do	Do.		
94	July 13	22 03	17 33	19 53	554	1,013	Greenish, muddy sand	Do.		
95	July 13	21 59	17 36	19 56	609	1,113	do	Do.		
96	July 13	21 58	17 37	19 52	486	888	do	Do.		
97	July 13	21 53	17 30	19 50	358	655	do	Do.		
98	July 13	21 51	17 28	19 48	96	175	do	Do.		
99	July 13	21 47	17 27	19 47	129	235	do	Do.		
100	July 14	20 44	18 07	20 27	76	140	do	Do.		
101	July 14	20 41	18 08	20 28	817	1,495	do	Do.		
102	July 14	20 39	18 09	20 29	702	1,283	do	Do.		
103	July 14	20 38	18 09	20 29	596	1,090	do	Do.		
104	July 14	20 38	18 19	20 30	673	1,230	do	Do.		
105	July 15	19 30	18 20	20 40	634	1,180	do	Do.		
106	July 15	19 16	18 02	20 22	2,333	2,333	Greenish, greasy mud	Do.		
107	July 15	19 16	18 00	20 20	1,276	2,330	do	Do.		
108	July 15	19 12	17 57	20 17	1,269	2,320	do	Do.		
109	July 15	19 12	17 57	20 17	1,271	2,324	do	Do.		
110	July 16	18 25	17 52	20 17	1,271	2,324	do	Do.		
111	July 16	18 25	17 59	20 19	1,467	2,653	Gray mud	Do.		
112	July 17	17 15	17 07	19 27	1,570	2,653	Slaty clay	Do.		
113	July 17	17 12	17 07	19 27	858	1,570	Greenish mud	Do.		
114	July 17	17 12	16 59	19 19	1,617	1,617	do	Do.		
115	July 18	16 38	18 24	20 44	1,550	3,200	Gray mud	Do.		
116	July 19	15 48	20 23	22 43	3,655	3,655	do	Do.		
117	July 23	123	225	Sand rocks	1,999	73.4	36.1	23.0	2.3	Between coast of Africa and Cape Verde Islands.
118	July 23	57	105	Rocks	105	Do.	Do.	Do.	Do.	Among the Cape Verde Islands.
119	July 23	67-155	123-233	Sand, rocks	123-233	Do.	Do.	Do.	Do.	Do.
120	July 23	44	80	do	44	Do.	Do.	Do.	Do.	Do.
121	July 24	16 13	24 37	26 57	3,705	3,705	Greenish mud	Do.	Do.	Between Santiago and St. Vincent.
122	July 26	Roads of Porto Grande	14-19	25-35	25-35	Mud and corallines	Do.	Do.	Do.	Among the Cape Verde Islands.
123	July 27	Between Branco and Razo	44-60	80-110	44-60	Sand, rocks	Do.	Do.	Do.	Do.
124	July 28	Between Branco and Razo	30-75	30-75	30-75	Sand, shells	Do.	Do.	Do.	Do.
125	July 29	Roads of Porto Grande	41-49	75-90	41-49	do	Do.	Do.	Do.	Do.

Dredgings by the French steamer *Talisman*, 1883—Continued.

Serial number.	Date.	North latitude.	West longitude, Greenwich.	West longitude, Paris.	Depth.	Depth.	Kind of bottom.	Temperatures.				Locality.
								Surface.	Bottom.	Surface.	Bottom.	
					Fathoms.	Meters.		° F.	° F.	° C.	° C.	
116	July 29	16 53	25 10	27 30	224-232	410-160	Sand, gravel	.....	.....	.....	.....	Among the Cape Verde Islands.
117	July 29	16 52	25 10	27 30	219	400	do	.....	.....	.....	.....	Do.
118	July 29	16 52	25 06	27 26	217	580	do	.....	.....	.....	.....	Do.
119	July 30	16 55	25 07	27 27	190	347	Sand, rocks	.....	.....	.....	.....	Do.
120	July 30	16 51	25 09	27 23	221	403	Rocks	.....	.....	.....	.....	Do.
121	July 30	16 52	25 10	27 30	201	550	Sand	.....	.....	.....	.....	Do.
122	July 30	16 52	25 12	27 32	418	760	Sand, gravel	.....	.....	.....	.....	Do.
123	July 30	16 53	25 12	27 32	338	618	Muddy sand	.....	.....	.....	.....	Do.
124	July 30	16 51	25 10	27 30	346	633	do	.....	.....	.....	.....	Do.
125	July 30	16 52	25 12	27 32	327	598	Sand, rocks	.....	.....	.....	.....	Do.
126	July 30	18 37	25 10	27 30	2,469	4,115	Yellow mud	.....	.....	.....	.....	Do.
127	Aug. 7	30 17	40 47	43 07	1,930	3,530	Powdered pumice	.....	.....	.....	.....	North of Cape Verde Islands.
128	Aug. 8	31 34	41 15	43 35	1,709	3,125	do	.....	.....	.....	.....	In Sargasso Sea.
129	Aug. 9	33 19	35 44	38 04	1,877	3,432	do	.....	.....	.....	.....	Do.
130	Aug. 10	34 46	33 51	36 11	1,736	3,175	do	.....	.....	.....	.....	Do.
131	Aug. 11	36 11	32 01	34 21	1,201	2,195	Sand, rocks, hard ground	.....	.....	.....	.....	Southwest of Azores.
132	Aug. 11	36 12	31 54	34 14	1,597	2,792	do	.....	.....	.....	.....	Do.
133	Aug. 11	36 13	31 47	34 07	1,597	2,792	do	.....	.....	.....	.....	Do.
134	Aug. 11	36 14	31 40	34 00	1,574	2,878	do	.....	.....	.....	.....	Do.
135	Aug. 12	37 35	29 33	31 43	789	1,442	Gray mud	.....	.....	.....	.....	Do.
136	Aug. 12	37 35	29 36	31 40	787	1,440	do	.....	.....	.....	.....	Azore Islands.
137	Aug. 12	37 33	29 36	31 40	639	560	Sand, gravel	.....	.....	.....	.....	Do.
138	Aug. 12	38 23	28 30	31 10	306	629	Sand, rocks	.....	.....	.....	.....	Do.
139	Aug. 13	38 23	28 30	31 04	344	639	Sand, gravel	.....	.....	.....	.....	Do.
140	Aug. 13	38 25	28 44	31 04	344	639	do	.....	.....	.....	.....	Do.
141	Aug. 13	38 25	28 44	31 04	44-63	80-115	do	.....	.....	.....	.....	Do.
142	Aug. 13	38 37	28 21	30 41	44-104	80-190	do	.....	.....	.....	.....	Do.
143	Aug. 15	38 38	28 20	30 40	688	1,258	Gray mud	.....	.....	.....	.....	Do.
144	Aug. 15	38 38	28 21	30 41	687	1,221	do	.....	.....	.....	.....	Do.
145	Aug. 15	38 39	28 21	30 41	686	1,257	do	.....	.....	.....	.....	Do.
146	Aug. 16	38 07	27 12	29 32	538	1,255	do	.....	.....	.....	.....	Do.
147	Aug. 16	38 00	27 13	29 33	538	1,255	Sand, shells, Globigerina	.....	.....	.....	.....	Do.
148	Aug. 16	38 00	27 05	29 25	2,220	2,220	Soft, gray mud	.....	.....	.....	.....	Do.
149	Aug. 16	37 55	27 02	29 22	2,235	2,155	do	.....	.....	.....	.....	Do.
150	Aug. 16	37 55	27 02	29 22	2,235	2,155	do	.....	.....	.....	.....	Do.
151	Aug. 22	38 38	25 06	27 26	1,638	2,995	Soft, white mud	.....	.....	.....	.....	North of St. Michael.
152	Aug. 23	38 38	25 06	27 26	2,414	4,415	do	.....	.....	.....	.....	From Azores to France.
153	Aug. 24	42 15	21 17	23 37	2,174	3,975	do	.....	.....	.....	.....	Do.
154	Aug. 24	42 15	21 17	23 37	2,220	4,000	do	.....	.....	.....	.....	Do.
155	Aug. 24	42 19	21 16	23 36	2,220	4,000	do	.....	.....	.....	.....	Do.

[illegible]

DREDGING STATIONS OF THE ITALIAN STEAMER WASHINGTON IN THE MEDITERRANEAN, 1881.

The *Washington* was under the command of Commander G. B. Magnaghi, of the Italian navy, and the dredgings were under the direction of Prof. Enrico Hillyer Giglioli. The report from which these positions are taken was published in the Report of the Third International Geographical Congress ("Terzo Congresso Geografico Internazionale") held in Venice in 1881, published in Rome 1882.

Dredgings by the Italian steamer Washington, 1881.

Number of station.	Number of dredging.	Date.	Latitude north.	Longitude east, Greenwich.	Depth.	Depth.	Nature of bottom.	Locality.
		1881.	° ' "	° ' "	Fathoms.	Meters.		
1	1	Aug. 2	41 08 45	8 34 21	437	800	Mud	North of Sardinia.
2	2	Aug. 3	41 02 48	8 32 20	246	450	Very fine mud ..	Do.
2	3	Aug. 3	to	to	86	157	Mud	Northwest of Sardinia.
2	4	Aug. 3	41 05 01	8 32 23	202-230	370-420	Madrepores	Do.
3	5	Aug. 4	41 10 27	8 15 41	92-155	168-284	do	Do.
4	6	Aug. 4	41 15 09	8 10 41	1, 176	2, 150	Mud (?)	Do.
5	7	Aug. 8	41 10 00	8 12 00	128-303	235-555	Madrepores	Do.
6	8	Aug. 8	41 13 10	8 12 24	1, 094	2, 000	Dredge lost	Do.
7	9	Aug. 8	41 14 38	8 18 05	1, 173	2, 145	Fine tenacious yellow mud.	Do.
8	10	Aug. 9	41 24 42	7 43 28	1, 531	2, 800	Tenacious mud ..	Do.
9	11	Aug. 9	-----	-----	1, 553	2, 840	Grayish-yellow mud.	Do.
10	11	Aug. 10	41 23 38	7 08 54	1, 588	2, 904	Mud	Do.
11	12	Aug. 10	41 18 42	6 54 02	1, 534	2, 805	Tenacious mud ..	Do.
12	13	Aug. 11	39 51 40	6 44 40	1, 590	2, 908	Dredge empty ..	West of Sardinia.
13	14	Aug. 13	39 15 37	9 26 37	278	508	Mud	Southwest of Sardinia.
13	15	Aug. 13	39 03 46	9 27 47	359	656	do	Do.
14	16	Aug. 13	39 01 28	9 30 19	422-470	772-860	do	Do.
15	17	Aug. 14	38 38 04	9 45 56	875	1, 600	Yellow mud	Do.
16	18	Aug. 14	38 50 26	9 39 15	221	404	Sandy mud	Do.
16	19	Aug. 14	38 50 15	9 42 50	450	822	Yellowish mud ..	Do.
17	20	Aug. 15	39 23 07	9 40 53	225	412	Dredge empty ..	East of Sardinia.
17	21	Aug. 15	39 21 50	9 40 08	615	1, 125	Mud	Do.
18	22	Aug. 15	39 20 58	9 37 02	208	381	Mud; dredge lost	Do.
19	23	Aug. 16	39 40 40	9 54 12	849	1, 553	Yellow mud	Do.
20	24	Aug. 16	39 43 28	9 50 22	341-477	623-856	do	Do.
21	25	Aug. 16	39 49 40	9 49 08	33	60	Sand; algæ	Do.
22	26	Aug. 16	39 58 32	9 48 08	216	395	Mud	Do.
23	27	Aug. 17	40 32 16	10 12 36	281-514	514-940	Rocky	Do.
24	28	Aug. 17	40 37 08	10 40 05	979	1, 790	Tenacious mud ..	Between Sardinia and Naples.
25	29	Aug. 18	40 44 40	11 22 00	1, 142-1, 307	2, 182-2, 390	-----	Do.
26	30	Aug. 18	40 44 20	11 33 22	1, 229	2, 247	Mud	Do.
27	31	Aug. 19	40 29 00	12 34 00	1, 703	3, 115	do	Do.
28	32	Aug. 19	40 10 13	12 26 00	1, 985	3, 630	do	Do.
29	33	Aug. 26	40 37 32	14 09 52	223-235	407-430	Mud	South of Naples.
29	33	Aug. 26	-----	-----	87-197	159-360	do	Do.
30	34	Aug. 26	40 26 52	14 07 15	585	1, 070	do	Do.
31	35	Aug. 27	39 20 28	13 10 38	1, 982	3, 624	Mud	Between Naples and Sicily.
32	36	Aug. 28	38 05 00	11 59 40	219	400	Sand and yellow mud.	West of Sicily.
33	37	Aug. 28	37 55 50	11 53 15	450	823	-----	Do.
33	38	Aug. 28	37 52 55	11 56 40	437	800	Mud	Do.
34	39	Aug. 29	36 55 00	11 15 00	(*)	(†)	} Banks producing precious coral.	Between Sicily and Africa.
35	40	Sept. 2	37 15 00	12 44 00	(*)	(†)		

* About 110 fathoms.

† About 200 meters.

ZOOLOGICAL STATIONS OF THE NORWEGIAN NORTH-ATLANTIC EXPEDITIONS, 1876-1878.

These expeditions were made by the steamer *Vöringen* and the zoological and physical researches were under the charge of Dr. Danielssen, Profs. Mohn and G. O. Sars, Herr Friele, etc. The first expedition, in 1876, extended along the western coast of Norway to the Färöe Islands and Iceland; the second, in 1877, from Bergen to outside the Loffoden Islands, and from Tromsøe to Jan Mayen; the third, in 1878, to Vardö, thence westward to Beeren Island, and afterwards to Spitzbergen in 80° N. latitude. All the dredging stations are given in this list.

Dredgings of Norwegian North-Atlantic expeditions, 1876-1878.

Serial number.	Date.	Latitude.	Longitude.	Depth.	Nature of bottom.	Bottom temperatures.		Apparatus used.
						Fahr.	Cent.	
	1876.	North.	East.	Faths.		°	°	
1	June 3	61 13	6 36	650	Sandy clay	43.9	6.6	D.
2	June 3	61 10	6 32	672	do	44.1	6.7	T.
4	June 8	61 05	5 14	566	Sandy clay, pebbles	43.9	6.6	T.
8	June 9	61 00	4 49	200	Clay, sand, stones	43.9	6.6	D.
9	June 20	61 30	3 37	206	Clay	42.6	5.9	T.
10	June 21	61 41	3 19	220	Ooze, clay	42.8	6.0	T.
18	June 21	62 44	1 48	412	Clay	30.2	-1.0	D., T.
23	June 23	62 52	5 50					T.
25	June 28	63 10	5 25	98	Sandy clay	44.4	6.9	D., T.
26	June 28	63 10	5 16	237	do	44.8	7.1	D.
31	June 29	63 10	5 00	417	do	30.2	-1.0	D., T.
33	June 30	63 05	3 00	525	Clay	30.0	-1.1	D., T.
34	July 1	63 05	0 53	587	do	30.2	-1.0	T.
			West.					
35	July 5	63 17	1 27	1,081	Biloculina clay	30.2	-1.0	D.
40	July 18	63 22	5 29	1,215	do	29.8	-1.2	D., T.
48	Aug. 6	64 36	10 22	299	Dark gray clay	31.5	-0.3	Tan.
51	Aug. 7	65 53	7 18	1,163	Biloculina clay	30.0	-1.1	D.
52	Aug. 8	65 47	3 07	1,861	do	29.8	-1.2	T.
			East.					
53	Aug. 10	65 13	0 33	1,539	do	29.7	-1.3	D., T.
54	Aug. 12	64 47	4 24	601	do	29.8	-1.2	D., T.
79	Aug. 21	64 48	6 32	155	Sandy clay	44.4	6.9	D.
87	Aug. 22	64 02	5 35	498	Clay	30.0	-1.1	D.
92	Aug. 22	64 00	6 42	178	Sandy clay	45.0	7.2	T.
93	Aug. 24	62 41	7 08	158	Soft clay	43.5	6.4	T.
	1877.	(Romsdalfjord.)						
96	June 16	66 08	3 00	805	Biloculina clay	30.0	-1.1	D.
101	June 17	65 36	8 32	223	Sandy clay	42.8	6.0	D.
124	June 19	66 41	6 59	350	Coarse clay	30.4	-0.9	D., T.
137	June 21	67 24	8 58	452	Clay	30.2	-1.0	D., T.
147	June 22	66 49	12 08	142	Gray clay	43.2	6.2	D.
149	June 23	67 52	13 58	135	Clay	40.8	4.9	D., T.
		(Vestfjord.)						
164	June 29	68 21	10 40	457	Sandy clay	30.7	-0.7	D., T.
173b	July 3	69 18	14 32	300	Clay, stones	40.3	4.6	D.
175	July 2	69 17	14 35	415	Clay, pebbles	37.4	3.0	D.
177	July 3	69 25	13 49	1,443	Biloculina clay	29.8	-1.2	D., T.
183	July 5	69 59	6 15	1,710	do	29.7	-1.3	D., T.
190	July 7	69 41	15 51	870	Sandy clay	29.8	-1.2	T.
192	July 7	69 46	16 15	649	do	30.7	-0.7	D.
195	July 16	70 55	18 38	107	Stones, clay	41.2	5.1	D.
200	July 17	71 25	15 41	620	Clay	30.2	-1.0	D., T.
205	July 18	70 51	13 03	1,287	Biloculina clay	29.8	-1.2	D.
213	July 26	70 23	2 30	1,760	do	29.8	-1.2	D.
			West.					
223	Aug. 1	70 54	8 24	70	Dark gray, sandy clay	30.9	-0.6	D.
		(Jan Mayen Id.)						
224	Aug. 1	70 51	8 20	95	do	30.9	-0.6	D.
225	Aug. 2	70 58	8 04	195	do	30.9	-0.6	D.
237	Aug. 3	70 41	10 10	263	Brown clay, stones	31.5	-0.3	D.
240	Aug. 4	69 02	11 26	1,004	Biloculina clay	30.0	-1.1	D.

Dredgings of Norwegian North-Atlantic expeditions, 1876-1878—Continued.

Serial number.	Date.	Latitude.	Longitude.	Depth.	Nature of bottom.	Bottom temperatures.		Apparatus used.
						Fahr.	Cent.	
	1877.	<i>North.</i>	<i>East.</i>	<i>Faths.</i>		<i>°</i>	<i>°</i>	
248	Aug. 8	67 56	4 11	778	Biloculina clay	29.5	-1.4	D.
251	Aug. 9	68 06	9 44	634	Clay	29.7	-1.3	D.
252	Aug. 11	(Vestfjord.)			do			D.
253	Aug. 15	(Skjerstadfjord.)		263	do	37.8	3.2	D.
253b	Aug. 17	(Saltstrommen.)		90	Stones			D.
	1878.							
255	June 19	68 12	15 40	341	Clay	43.7	6.5	D.
		(Vestfjord.)						
257	June 21	70 04	23 02	160	do	39.0	3.9	D.
		(Altenfjord.)						
258	June 21	70 13	23 03	230	do	39.2	4.0	T.
		(Altenfjord.)						
260	June 24	70 55	26 11	127	do	38.3	3.5	D., T.
		(Porsangerfjord.)						
261	June 25	70 47	28 30	127	do	37.0	2.8	D., T.
		(Tanafjord.)						
262	June 27	70 36	32 35	148	do	35.4	1.9	D., T.
267	June 27	71 42	37 01	148	Clay, stones	29.5	-1.4	D.
270	June 27	72 27	35 01	136	Clay	32.0	0.0	D.
273	July 1	73 25	31 50	197	do	36.0	2.2	D.
275	July 2	74 08	31 12	147	do	31.3	-0.4	T.
280	July 4	74 10	18 51	35	Stones	34.0	1.1	D.
		(Beeren Island.)						
283	July 5	73 47	14 21	767	Clay	29.5	-1.4	D.
286	July 6	72 57	14 32	447	do	30.6	-0.8	T.
290	July 7	72 27	20 51	191	Sandy clay	38.3	3.5	T.
295	July 14	71 59	11 40	1, 110	Biloculina clay	29.7	-1.3	T.
297	July 16	72 36	5 12	1, 280	do	29.5	-1.4	T.
303	July 19	75 12	3 02	1, 200	do	29.1	-1.6	T.
312	July 22	74 54	14 53	658	Clay	29.8	-1.2	T.
315	July 22	74 53	15 55	180	Clay, sand	36.5	2.5	T.
322	July 23	74 57	19 52	21	Hard	32.4	0.2	D.
323	July 30	72 53	21 51	223	Clay	34.7	1.5	T.
326	Aug. 3	75 31	17 50	123	do	34.9	1.6	T.
333	Aug. 4	76 06	13 10	748	Biloculina clay	29.7	-1.3	T.
336	Aug. 5	76 19	15 42	70	Clay, hard bottom	32.7	0.4	D.
338	Aug. 6	76 19	18 01	146	Hard	30.0	-1.1	D.
343	Aug. 7	76 34	12 51	743	Clay	29.8	-1.2	T.
		<i>West.</i>						
350	Aug. 8	76 26	0 29	1, 686	Biloculina clay	29.3	-1.5	T.
		<i>East.</i>						
353	Aug. 10	77 58	5 10	1, 333	do	29.5	-1.4	T.
357	Aug. 12	78 03	11 18	125	Clay	35.4	1.9	D.
359	Aug. 12	78 02	9 25	416	do	33.4	0.8	D.
362	Aug. 14	79 59	5 40	459	do	30.2	-1.0	T.
363	Aug. 14	80 03	8 28	260	do	34.0	1.1	T.
366	Aug. 17	79 35	11 17	61	do	28.2	-2.1	T.
366	Aug. 17	Magdalena Bay.		37	do	31.6	-0.2	T.
370	Aug. 18	78 48	8 37	109	do	34.0	1.1	T.
372	Aug. 19	78 09	14 07	129	do	34.2	1.2	T.
		(Isfjord.)						
374	Aug. 22	78 16	15 33	60	do	33.3	0.7	T.
		(Advent Bay)						

ZOOLOGICAL STATIONS OF THE SWEDISH ARCTIC EXPEDITIONS OF 1875, 1876, AND 1878-79.

The dredgings of 1875 were made by A. E. Nordenskiöld and Dr. Hjalmar Thél in the sloop *Proeven*, those of 1876 by Nordenskiöld in the steamer *Ymer*, those of 1878-79 by Nordenskiöld in the *Vega*.

The numbers assigned to the stations are arranged geographically, instead of according to the dates at which they were made.

The numbers 98, 103, and 104 refer to collections not made by the *Vega* expedition but brought in by the Tschuktsches, who found them thrown on the shores in the spring and summer months of 1879.

Serial number.	Date.	Latitude north.	Longitude, Greenwich, east.	Depth.	Kind of bottom.	Temperatures, Fahr.		Temperatures, Cent.		Apparatus used.
						Sur-face.	Bot-tom.	Sur-face.	Bot-tom.	
1	Aug. 2, 1875	69 55	0 30	10	Sand and shells.	42.3	0	5.7	0	D.
2	Aug. 3, 1875	70 00	00 35	120	Mud	39.0	28.6	3.9	—1.9	D. and Tan.
3	Aug. 6, 1876	70 45	01 00	90	Brown soft mud	40.3		4.6		D. and Tan.
4	Aug. 8, 1878	70 14	01 21	116	Fine soft mud	39.9		4.4		D. and Tan.
5	do	70 23	01 42	100	Five mud, poor in life	41.7		5.4		Tau.
6	Aug. 7, 1876	70 30	02 00	60	Mud	42.3		5.7		D. and Tan.
7	Aug. 8, 1876	70 25	02 30	55	do	35.2		1.8		D. and Tan.
8	do	70 20	02 40	50	Brown mud	35.6		2.0		D. and Tan.
9	Aug. 9, 1876	70 12	03 07	150	Mud	36.0	28.9	2.2	—1.7	D. and Tan.
10	Aug. 4, 1875	71 05	03 20	90	do	39.2		4.0		D.
11	do	71 00	03 25	70	Fine mud, poor in life	39.6	30.6	4.2	—0.8	D. and Tan.
12	Aug. 2, 1878	71 03	03 48	70	Mud	34.3		1.3		D. and Tan.
13	Aug. 9, 1876	70 10	04 40	28	Greenish-gray mud	38.5	28.4	3.6	—2.0	D. and Tan.
14	Aug. 2, 1878	71 21	04 53	60	Mud	39.8		1.0		D. and Tan.
15	Aug. 10, 1876	70 10	05 30	7	Slightly muddy sand	32.7		0.4		D.
16	Aug. 11, 1876	70 12	05 45	8	Very hard, muddy sand	32.2		0.1		D.
17	Aug. 12, 1876	70 15	06 00	9	Hard sand	33.8		1.0		D.
18	do	70 20	06 00	9	Sand	43.2	30.9	6.2	—0.6	D.
19	Aug. 5, 1876	70 55	06 40	11	do	42.1		5.6		D.
20	Aug. 6, 1876	71 00	06 50	12	do	43.3		6.3		D.
21	do	71 10	06 50	10	do	44.6		7.0		D. and Tan.
22	do	71 15	06 05	8	Dark-blue mud	43.0		6.1		D. and Tan.
23	Aug. 7, 1876	71 55	07 00	32	Fine, soft, grayish-brown mud	38.3	27.9	3.5	—2.3	D. and Tan.
24	Aug. 2, 1876	72 05	06 10	85	Mud	42.6		5.9		Tangles.
25	Aug. 7, 1875	72 05	07 30	36	do	41.7		5.4		Tangles.
26	do	72 10	07 55	21	Fine, gray, sandy mud	37.4	34.5	3.0	1.4	D. and Tan.
27	Aug. 3, 1878	72 42	08 02	15	Sand	40.6		4.8		D.
28	Aug. 3, 1875	73 00	08 30	3	Brown, muddy sand	36.5	28.4	2.5	—2.0	D. and Tan.
29	Aug. 3, 1878	73 15	08 15	8	Slightly muddy sand	46.0	30.2	7.8	—1.0	D. and Tan.
30	Aug. 9, 1875	73 28	08 32	10	Grayish-brown muddy sand	33.8	28.8	1.0	—1.8	D. and Tan.
31	Aug. 3, 1878	73 45	09 10	10	Sand	46.0	30.2	7.8	—1.0	D.
32	Aug. 10, 1875	73 35	72 00	12	Gray sand	37.6		3.1		Tangles.
33	Aug. 6, 1878	74 05	71 06	16	Dark-brown, somewhat muddy sand	36.9		2.7		Tangles.
34	Sept. 3, 1876	74 30	73 25	17	Sandy mud	37.0		2.8		Tangles.
35	do	74 12	75 45	18	Muddy sand	44.4		6.9		Tangles.
36	do	75 20	75 45	23	Mud	37.8	28.9	3.2	—1.7	D.
37	Sept. 2, 1876	73 37	80 35	22	Muddy sand	36.5		2.5		D.
38	Aug. 11, 1875	75 00	75 20	20	do					
39	do	75 35	77 30	20	do					

Zoological stations of Swedish Arctic expeditions, etc.—Continued.

Serial number.	Date.	Latitude north.	Longitude, Greenwich, east.	Depth.	Kind of bottom.	Temperatures, Fahr.		Temperatures, Cent.		Apparatus used.
						Sur-face.	Bot-tom.	Sur-face.	Bot-tom.	
40	Aug. 12, 1875	75 40	78 40	26	Muddy sand	32.9	28.9	0	0	D. and Tan.
41	Aug. 14, 1875	74 30	80 30	20	Mud, with ferruginous concretions	34.5	28.9	0.5	-1.7	D. and Tan.
42	Sept. 2, 1875	73 15	57 18	50	Mud	39.2	50	1.4	.....	Tangles.
43	July 31, 1876	73 10	57 45	150	do	34.5	28.9	4.0	.....	D. and Tan.
44	Aug. 31, 1875	73 30	57 55	60	do	34.5	28.9	1.4	-1.7	D. and Tan.
45	Aug. 20, 1875	Udde Bay on the east coast of Nova Zembla		5	Lithothamnion bottom	38.5	.....	3.6	.....	D.
46	Sept. 7, 1876	73 28	58 00	50-125	Stony and muddy	37.4	.....	3.0	.....	D. and Tan.
47	do	73 30	58 20	80	Stones	36.0	.....	2.2	.....	Tangles.
48	Sept. 6, 1876	73 28	59 08	100	Sand	36.0	.....	2.2	.....	D. and Tan.
49	Sept. 5-6, '76	73 38	63 05	80	Sand and broken shells	33.5	.....	1.4	.....	D. and Tan.
50	Sept. 5, 1876	74 30	63 35	35	Unknown	32.4	.....	0.2	.....	Tangles.
51	Sept. 4, 1876	74 43	63 35	80	Mud	32.2	.....	0.1	.....	Tangles.
52	Aug. 24, 1875	75 30	64 10	00	Mud?	36.7	28.8	2.6	-1.8	D.
53	do	75 43	65 20	40-50	do	37.0	.....	2.8	.....	Tangles.
54	Sept. 4, 1876	75 15	66 50	130	Brownish, sandy mud	32.2	29.5	0.1	-1.4	D. and Tan.
55	do	75 12	67 20	125	Brownish, sandy mud	33.6	.....	0.9	.....	D. and Tan.
56	Aug. 9, 1878	73 30	80 58	5	Fine, very soft, light-brown mud	48.7	48.2	9.3	9.0	D.
57	Aug. 10, 1878	73 52	82 12	20	Gray mud	47.7	.....	8.7	.....	D. and Tan.
58	do	74 08	82 12	19	do	46.4	30.2	8.0	-1.0	D. and Tan.
59	do	74 18	83 08	24	Mud	46.4	29.5	8.0	-1.4	Tangles.
60	Aug. 11, 1878	74 52	85 08	6	Sand	46.8	33.8	8.2	1.0	D.
61	Aug. 12, 1878	76 08	90 25	15	Stones	34.2	30.0	1.2	-1.1	Tangles.
62	Aug. 13, 1878	76 18	92 20	40	Brown mud, with many large stones	33.3	29.5	0.7	-1.4	D. and Tan.
63	do	76 18	94 03	3-10	Stones	35.6	.....	2.0	.....	D.
64	Aug. 14-16, '78	76 18	95 30	5-10	do	33.6	29.5	0.9	-1.4	D.
		{ Akrimia Bay								
		{ 77 36 | 103 25								
65	Aug. 19-20, '78	{ Off Cape Tschel-juskm.		5-10	Mud, with stones	31.8	.....	-0.1	.....	D.
66	Aug. 20, 1878	77 40	105 10	70	Gray mud	32.0	29.8	0.0	-1.2	Tangles.
67	Aug. 21, 1878	77 28	108 28	50	do	32.9	29.5	0.5	-1.4	Tangles.
68	do	77 15	111 45	22	Gray mud	32.4	29.5	0.2	-1.4	Tangles.
69	Aug. 22, 1878	76 55	115 18	32	Mud	31.8	.....	-0.1	.....	Tangles.
70	do	76 52	116 00	36	Fine, gray mud	30.9	29.5	-0.6	-1.4	Tr.
71	Aug. 23, 1878	76 40	115 30	35	Mud	30.9	34.9	-0.6	1.6	Tr.
72	Aug. 24, 1878	75 00	113 30	15	Mud, with stones	39.2	30.6	4.0	-0.8	Tr. and Tan.

DREDGING STATIONS OF THE DANISH ARCTIC EXPEDITION, 1882-'83.

The Danish Arctic expedition of 1882-'83 in the steamer *Dijmphna*, commanded by Lieutenant Hovgaard, was partially at the expense of the Danish Government, but mainly at that of the brothers Gamél. The naturalist in charge was Th. Holm. The zoological and botanical results were published in 1887 at Copenhagen in an octavo volume, containing papers by Holm, Jensen, Deichmann Branth, Wille and Kolderup Rosenvinge, on the botany, and by Lütken, Hansen, Levinsen, Bergh, Jungersen, Traustedt, Collin, and Holm on the zoology.

The dredgings were on the southern coast of Nova Zembla and in the Kara Sea.

No. 1 in the Kostin Schar on the southwest coast of Nova Zembla.

No. 2 in the Nicholskoi Schar on the southwest coast of Nova Zembla.

No. 3 in the Olenje Sund on the southwest coast of Nova Zembla.

Nos. 4-6 in the Petuschowski Schar in the southwest coast of Nova Zembla.

No. 7 in the Kara Sea, off Cape Yarasol.

Nos. 8-10 in the Jugor Schar at its outlet into the Kara Sea.

Nos. 11-188 in the Kara Sea.

Nos. 189-90 in the Kara Strait, between Nova Zembla and Waigatsch Island.

Dredging stations of the Danish Arctic expedition, 1882-'83.

Serial number.	Date.	Latitude north.	Longitude east, Greenwich.	Depth.	Kind of bottom.	Higher algae found.
	1882.	° '	° '	Fath.		
1	Aug. 12	71 24	52 49	5	Sand and stones	A.
2	Aug. 18	70 31	57 28	12	Blue clay, with stones	A.
3	Aug. 23	70 30	57 02	12	Sand and stones	A.
4	Aug. 28	70 34	56 18	5	do	A.
5	Aug. 29	70 34	56 18	5	do	A.
6	Sept. 1	70 34	56 18	5	do	A.
7	Sept. 9	69 52	60 40	10-12	Blue clay, with brown mud, stony	A.
8	Sept. 12	69 49	60 32	6	Sand and blue clay	A.
9	Sept. 13	69 49	60 32	6	do	A.
10	Sept. 15	69 48	60 33	6	Blue clay	A.
11	Sept. 26	70 15	64 25	65	Blue clay, with brown mud	
12	Sept. 27	70 17	64 20	70	do	
13	Sept. 28	70 12	64 37	67	do	
14	Sept. 29	70 10	64 41	65	do	
15	Sept. 30	70 11	64 39	67	do	
16	Oct. 2	70 12	64 23	69	Dark-brown clay	
17	Oct. 3	70 14	64 22	69	do	
18	Oct. 4	70 16	64 23	66	do	
19	Oct. 5	70 19	64 26	60	do	
20	Oct. 6	70 20	64 31	58	do	
21	Oct. 7	70 21	64 22	65	do	A.
22	Oct. 9	70 23	64 03	79	do	A.
23	Oct. 10	70 22	63 56	81	Blue clay, with brown mud	
24	Oct. 11	70 20	63 44	97	do	
25	Oct. 12	70 19	63 40	98	do	
26	Oct. 14	70 17	63 37	104	Dark-brown clay	
27	Oct. 16	70 21	63 55	78	do	
28	Oct. 17	70 16	64 11	75	do	
29	Oct. 19	70 07	64 22	70	Blue clay, with brown mud	A.
30	Oct. 20	70 07	64 27	67	do	
31	Oct. 21	70 08	64 42	67	do	
32	Oct. 23	70 07	64 52	61	do	
33	Oct. 24	70 03	64 53	61	Stiff gray clay, with a little brown mud	
34	Oct. 25	70 03	64 47	58	Blue clay, with brown mud	
35	Oct. 27	70 04	64 51	60	do	
36	Oct. 31	70 12	64 12	75	do	
37	Nov. 2	70 18	64 00	76	do	
38	Nov. 8	70 17	64 26	62	Dark-brown clay	

Dredging stations of the Danish Arctic expedition, 1882-'83—Continued.

Serial number.	Date.	Latitude north.	Longitude east, Greenwich.	Depth.	Kind of bottom.	Higher al- ge found.
	1882.	° ' "	° ' "	Fath.		
39	Nov. 16	70 23	64 13	75	Blue clay, with brown mud	
40	Nov. 21	70 19	64 05	72	do	
41	Nov. 25	70 16	64 04	80	Stiff brownish-gray clay	
42	Dec. 1	70 15	63 52	80	Dark-brown clay	
43	Dec. 12	70 28	64 35	68	Blue clay, with brown mud	A.
44	Dec. 15	70 33	64 37	48	do	
45	Dec. 16	70 36	64 43	23	do	
46	Dec. 22	70 38	64 40	23	do	
	1883.					
47	Jan. 4	70 58	65 05	20	do	
48	Jan. 6	70 57	65 02	20	do	
49	Jan. 9	70 58	65 09	20	do	
50	Jan. 12	70 59	64 41	40	do	
51	Jan. 16	70 54	63 57	68	do	
52	Jan. 19	70 55	64 16	50	do	
53	Jan. 23	70 58	64 04	67	do	
54	Jan. 26	70 58	64 00	68	do	
55	Jan. 29	71 05	64 31	55	do	
56	Jan. 31	71 02	64 23	55	do	
57	Feb. 1	71 02	64 16	55	do	
58	Feb. 3	71 04	64 07	58	do	A.
59	Feb. 6	71 05	64 05	58	do	
60	Feb. 9	71 05	63 50	59	do	
61	Feb. 12	71 05	64 17	58	do	
62	Feb. 13	71 06	64 21	54	do	
63	Feb. 14	71 04	64 36	53	do	A.
64	Feb. 15	71 04	64 38	53	do	
65	Feb. 17	71 07	64 25	55	do	A.
66	Feb. 21	71 08	64 31	51	do	
67	Feb. 22	71 09	64 39	51	do	
68	Feb. 23	71 11	64 42	51	do	
69	Feb. 24	71 14	64 43	60	do	
70	Feb. 26	71 17	64 47	66	do	
71	Feb. 28	71 21	64 48	80	Blue clay, with ferruginous concretions	
72	Mar. 1	71 20	64 53	66	Blue clay, with ferruginous concretions, and small stones.	
73	Mar. 3	71 28	65 04	78	do	
74	Mar. 5	71 38	65 17	85	Blue clay, with brown mud	
75	Mar. 6	71 40	65 07	84	Blue clay, with small stones	A.
76	Mar. 7	71 39	65 02	83	Blue clay, with brown mud	
77	Mar. 8	71 36	64 59	79	do	
78	Mar. 9	71 33	64 56	75	Blue clay, with ferruginous concretions	
79	Mar. 10	71 34	64 53	77	do	
80	Mar. 12	71 41	64 37	67	Blue clay, with brown mud	
81	Mar. 13	71 41	64 45	73	do	
82	Mar. 15	71 41	64 47	73	do	
83	Mar. 16	71 40	64 47	71	do	
84	Mar. 17	71 40	64 43	71	Blue clay, with small stones, and ferruginous concretions.	
85	Mar. 19	71 36	64 32	60	Blue clay, with brown mud and ferruginous concretions.	
86	Mar. 21	71 34	64 30	60	Blue clay, with brown mud	
87	Mar. 24	71 32	64 24	55	Blue clay, with ferruginous concretions	
88	Mar. 27	71 32	64 26	55	do	A.
89	Mar. 28	71 33	64 27	55	do	
90	Mar. 29	71 35	64 32	59	do	A.
91	Mar. 30	71 34	64 37	60	do	
92	Mar. 31	71 32	64 36	63	Blue clay, with brown mud	
93	Apr. 2	71 30	64 33	56	Blue clay, with ferruginous concretions and small stones.	
94	Apr. 3	71 28	64 33	56	Blue clay, with brown mud and small stones	
95	Apr. 6	71 31	64 34	57	Blue clay, with brown mud and ferruginous concretions.	
96	Apr. 7	71 33	64 33	58	do	A.
97	Apr. 9	71 34	64 33	57	do	
98	Apr. 10	71 36	64 33	60	do	A.
99	Apr. 11	71 37	64 38	70	Blue clay, small stones	
100	Apr. 12	71 40	64 43	68	Blue clay, with brown mud and ferruginous concretions.	
101	Apr. 13	71 44	65 03	81	Blue clay, with brown mud, and large stones	
102	Apr. 14	71 44	65 06	82	Blue clay, with brown mud, and ferruginous concretions.	
103	Apr. 16	71 45	65 20	88	Light-brown clay, with brown mud, and ferruginous concretions.	
104	Apr. 17	71 44	65 22	89	do	

Dredging stations of the Danish Arctic expedition, 1882-'83—Continued.

Serial number.	Date.	Latitude north.	Longitude east, Greenwich.	Depth.	Kind of bottom.	Higher algae found.
	1883.	° '	° '	Fath.		
105	Apr. 18	71 45	65 12	90	Light-brown clay, with brown mud	
106	Apr. 19	71 46	65 14	89	do	
107	Apr. 21	71 44	65 11	91	do	
108	Apr. 23	71 43	65 04	80	Light-brown clay, with brown mud, and ferruginous concretions.	
109	Apr. 24	71 39	64 56	73	do	
110	Apr. 25	71 38	64 58	79	Dark-brown clay, with brown mud, stones, and ferruginous concretions.	
111	Apr. 26	71 37	64 56	74	Grayish-brown clay, with ferruginous concretions.	
112	Apr. 27	71 37	64 54	74	Grayish-brown clay	
113	Apr. 28	71 36	64 49	70	Grayish-brown clay, with brown mud	
114	Apr. 30	71 38	64 37	65	Grayish-brown clay, with small stones, and ferruginous concretions.	
115	May 1	71 34	64 22	50	do	
116	May 2	71 33	64 17	50	Blue clay, with brown mud, and ferruginous concretions.	
117	May 4	71 32	64 17	50	do	
118	May 5	71 34	64 18	44	do	
119	May 7	71 35	64 12	49	do	
120	May 8	71 32	64 18	53	do	
121	May 9	71 32	64 19	51	do	
122	May 10	71 31	64 22	53	do	
123	May 11	71 28	64 17	56	Blue clay, with brown mud	A.
124	May 12	71 27	64 20	53	do	A.
125	May 15	71 25	64 22	50	Blue clay, with ferruginous concretions	
126	May 16	71 24	64 21	55	Blue clay, with brown mud	
127	May 17	71 22	64 20	68	Blue clay, with brown mud, and ferruginous concretions.	
128	May 18	71 21	64 23	69	do	
129	May 21	71 21	64 18	68	do	
130	May 22	71 22	64 17	56	do	
131	May 24	71 25	64 18	55	do	
132	May 26	71 18	64 01	55	Blue clay, with brown mud	
133	May 28	71 21	64 07	55	do	
134	May 30	71 22	64 02	55	Blue clay, with brown mud, and ferruginous concretions.	
135	June 1	71 20	64 05	56	Blue clay, some small stones	
136	June 4	71 18	64 16	57	Blue clay, with brown mud, and ferruginous concretions.	
137	June 6	71 17	64 16	60	do	
138	June 8	71 16	64 16	59	Blue clay, with brown mud	
139	June 9	71 15	64 16	64	Blue clay, with sandy clay, and a few small stones	
140	June 11	71 12	64 20	56	Blue clay, with brown mud, and ferruginous concretions.	
141	June 12	71 13	64 22	59	Blue clay, with brown mud	
142	June 14	71 10	64 11	73	Blue clay, with brown mud, and a few ferruginous concretions.	
143	June 15	71 09	64 06	58	do	
144	June 16	71 10	64 02	75	do	
145	June 18	71 18	63 42	70	do	
146	June 19	71 20	63 39	69	Blue clay, with brown mud	
147	June 20	71 21	63 43	65	Blue clay, with brown mud, and ferruginous concretions, and small stones.	
148	June 21	71 20	63 49	85	Blue clay, with brown mud	
149	June 23	71 18	63 48	82	do	
150	June 25	71 15	63 44	91	do	
151	June 26	71 14	63 44	93½	Blue clay, with brown mud, and sandy clay	
152	June 27	71 13	63 43	83	Blue clay, with brown mud, and ferruginous concretions.	
153	June 28	71 12	63 43	85	Blue clay, with brown mud	A.
154	June 29	71 12	63 43	95	do	
155	June 30	71 11	63 42	78½	Blue clay, with brown mud, ferruginous concretions, and stones.	
156	July 1	71 10	63 37	67½	Blue clay, with brown mud, and ferruginous concretions.	
157	July 2	71 09	63 33	70	do	
158	July 3	71 07	63 24	70	Blue clay, with brown mud	
159	July 4	71 06	63 22	73	do	
160	July 5	71 04	63 13	72	do	
161	July 6	71 05	63 10	72	do	
162	July 7	71 06	63 07	79½	Blue clay, with brown mud, and ferruginous concretions.	
163	July 9	71 05	62 55	80	Blue clay, with brown mud	
164	July 12	71 02	62 46	80	do	
165	July 14	71 05	62 38	75	Blue clay, with brown mud, and stones	
166	July 16	71 04	62 40	76½	do	
167	July 18	71 04	62 37	75	do	

Dredging stations of the Danish Arctic expedition, 1882-'83—Continued.

Serial number.	Date.	Latitude north.	Longitude east, Greenwich.	Depth.	Kind of bottom.	Higher alt-ge found
	1883.	° ' "	° ' "	Fath.		
168	July 20	71 06	62 42	75	Blue clay, with brown mud.	
169	July 22	71 05	62 47	73	Blue clay, with brown mud, and stones.	
170	July 24	71 04	62 49	74	Blue clay, with brown mud	
171	Aug. 2	71 14	62 37	70	do	A.
172	Aug. 4	71 18	62 10	58	Blue clay, with brown mud, and stones.	
173	Aug. 7	71 16	61 37	46	do	A.
174	Aug. 8	71 13	61 28	48½	do	
175	Aug. 10	71 10	61 22	52	do	
176	Aug. 13	71 11	61 12	53	do	
177	Aug. 16	70 59	60 30	68½	Blue clay and brown mud, with many sandy worm-tubes.	A.
178	Aug. 17	70 52	60 00	92	Blue clay, with light-brown mud, and small stones	A.
179	Aug. 20	70 54	59 51	93	Blue clay, and small stones	A.
180	Aug. 22	70 56	59 40	97	do	A.
181	Aug. 22	70 56	59 36	100	do	A.
182	Aug. 24	70 57	59 35	100	Blue clay and brown mud, with small stones.	
183	Aug. 30	71 04	59 40	98	Blue clay and small stones	
184	Sept. 3	71 17	59 43	74	Blue clay, with brown mud, sand-tubes, and small stones.	A.
185	Sept. 4	71 10	59 24	100	Blue clay, with brown mud	A.
186	Sept. 5	71 08	59 15	106	Blue clay and brown mud, with very numerous sand-tubes.	
187	Sept. 8	71 18	59 44		Blue clay and many sand tubes	A.
188	Sept. 9	71 26	59 58	62	Blue clay and many sand-tubes, with some mud and stones.	A.
189	Sept. 21	70 26	57 53	30	Sandy clay, and stony	A.
190	Sept. 22	70 20	57 47	50	do	A.

DREDGING AND SOUNDING STATIONS OF THE LIGHTNING, 1868.

The dredgings made by the British surveying steamer *Lightning* in 1868 were undertaken at the request of the Royal Society, and, with the exception of the dredgings of Count Pourtales in 1867 and 1868, were almost the first deliberate attempts to investigate the deep-sea fauna. The region explored was between the north of Scotland and the Färöe Islands and extending thence to a distance of about 250 miles northwest of Scotland. The series of temperatures obtained on this expedition, showing the great difference of temperature existing to the northeast and southwest of a submarine barrier (discovered by a subsequent expedition) were the first contributions of importance to our knowledge of the laws governing deep-sea temperatures. The scientific observations were under the charge of Dr. W. B. Carpenter and Prof. Wyville Thomson, and the preliminary report by Dr. Carpenter was published in No. 107 of the Proceedings of the Royal Society, 1868.

Dredging and sounding stations of the Lightning, 1868.

WARM AREA.

Serial number.	North latitude.	West longitude.	Depth.	Temperatures	
				Surface.	Bottom.
	° '	° '	Fathoms.	°	°
1	59 20	7 05	1500	54.5	49
2	60 32	9 10	164	54	48.5
3	60 31	9 18	229	54	48
4*	60 44	8 45	72	54	49
5*	61 01	7 48	62	53	50
12*	59 36	7 20	530	52.5	47.3
13*	59 05	7 29	189	52	49.3
14	59 59	9 15	650	53	46
15	60 38	11 07	570	52	47
16*	61 02	12 04	650		
17	59 49	12 36	620	52	46

COLD AREA.

6	60 45	4 49	510	52	33.7
7*	60 07	5 21	500	51	32.2
8	60 10	5 59	550	53	32
9*	60 24	6 38	170	52	41.7
10*	60 23	6 55	500	51	33
11	60 30	7 16	1450	50	33.2

* Dredgings.

† At least.

DREDGING STATIONS OF THE PORCUPINE, 1869.

The dredgings of the British steamer *Porcupine* in 1869 were in continuation of those of the *Lightning* in 1868, and were, like them, undertaken at the request of the Royal Society. They extended west of Ireland and Scotland, as far west as the Rockall Bank, and as far north as the Färöe Islands, and reached a depth of 2,435 fathoms, a much greater

one than ever before attained. Dr. Carpenter's report on them is contained in No. 121 of the Proceedings of the Royal Society, Vol. 17, p. 397.

Dredging stations of the Porcupine, 1869.

Serial number.	Date.	Latitude.	Longitude.	Depth.	Kind of bottom.	Temperatures, Fahrenheit.		Temperatures, centigrade.	
						Surface.	Bottom.	Surface.	Bottom.
		North.	West.	Fath.		°	°	°	°
1	May 18	51 51	11 50	370		54.2	49.0	12.3	9.4
2		51 22	12 25	808	Soft mud.	54.2	41.4	12.3	5.2
3		51 38	12 50	722		54.5	43.0	12.5	6.1
4		51 56	13 39	251		53.5	49.5	12.0	9.7
5		52 07	12 52	364		54.0	48.8	12.2	9.3
6		52 25	11 40	90		54.0	50.0	12.2	10.0
7		52 14	11 48	159		53.2	50.4	11.8	10.2
8		53 15	11 51	106		54.2	51.2	12.3	10.7
9		53 16	12 42	165		53.5	49.7	12.0	9.8
10		53 23	13 29	85		54.6	49.5	12.5	9.7
11		53 24	15 24	1,630					
12		53 41	14 17	670		52.2	42.6	11.2	5.9
13		53 42	13 55	208		53.6	49.6	12.0	9.8
14		53 49	13 15	173		53.2	49.6	11.8	9.8
15		54 05	12 17	422		52.2	47.0	11.2	8.3
16		54 19	11 50	816		53.0	39.5	11.7	4.2
17		54 28	11 44	1,230		53.2	37.8	11.8	3.2
18	June 7 to July 9	54 15	11 09	183		53.2	49.5	11.8	9.7
19	do	54 53	10 56	1,360		54.8	37.4	12.6	3.0
20	do	55 11	11 31	1,443		55.5	37.0	13.0	2.8
21	do	55 40	12 46	1,476		56.2	36.9	13.4	2.7
22	do	56 08	13 34	1,263		56.7	37.3	13.8	2.9
23	do	56 07	14 19	630		57.3	43.5	14.1	6.4
23a	do	56 13	14 18	420		56.8	46.4	13.7	8.0
24	do	56 26	14 28	109		57.7	46.4	14.3	8.0
25	do	56 41	13 39	164		56.8	46.5	13.7	8.1
26	do	56 58	13 17	345		57.4	46.7	14.1	8.2
27	do	Rockall Bank.		54		55.6	48.3	13.1	9.1
28	do	56 44	12 52	1,215		57.6	37.1	14.2	2.8
29	do	56 34	12 22	1,264		56.9	36.9	13.8	2.7
30	do	56 24	11 49	1,380		56.0	37.1	13.3	2.8
31	do	56 15	11 25	1,360		56.9	37.2	13.8	2.9
32	do	56 05	10 23	1,320		55.9	37.4	13.3	3.0
33	July 20	50 38	9 27	74	Mud, gravel, dead shells.	65.2	49.6	18.4	9.8
34	do	49 51	10 12	75	do	66.0	49.6	18.9	9.8
35	July 21	49 07	10 57	96	Gravel, dead shells	63.4	51.3	17.4	10.7
36	do	48 50	11 09	725	Muddy sand	64.0	43.9	17.7	6.1
37	July 22	47.88	12 08	2,435	Gray ooze	65.6	36.5	18.6	2.5
38	July 23	47 39	11 33	2,090	do	64.2	36.3	17.9	2.4
39	July 26	49 01	11 56	557	Ooze, sand, dead shells	63.0	47.0	17.2	8.3
40	do	49 01	12 05	517	do	63.4	47.7	17.4	8.7
41	do	49 04	12 22	584	do	63.4	46.5	17.4	8.1
42	July 27	49 12	12 52	862	do	62.6	39.7	17.0	4.3
43	July 28	50 01	12 26	1,207	Ooze	61.7	37.7	16.5	3.2
44	July 29	50 20	11 34	865		61.2	39.4	16.2	4.1
45	July 30	51 01	11 21	458		60.6	48.1	15.9	8.9
46	Aug. 17	59 23	7 04	374		53.9	46.1	12.1	7.7
47	August	59 34	7 18	542		54.0	43.8	12.2	6.5
48	do	59 32	6 59	540					
49	do	59 43	7 40	475		53.6	45.4	12.0	7.4
50	do	59 54	7 52	355		52.6	46.2	11.4	7.9
51	do	60 06	8 14	440		51.6	42.0	10.9	5.5
52	do	60 25	8 10	384		52.1	30.6	11.2	— 0.8
53	do	60 25	7 26	490		52.1	30.0	11.2	— 1.1
54	do	51 56	6 27	363		52.5	31.4	11.4	— 0.3
55	do	60 04	6 19	605		52.6	29.8	11.4	— 1.2
56	do	60 02	6 11	480		52.6	30.7	11.4	— 0.7
57	do	60 14	6 17	632		52.0	30.5	11.1	— 0.8
58	do	60 21	6 51	540		51.4	30.8	10.6	— 0.6
59	Aug. 20	60 21	5 41	580		52.7	29.7	11.5	— 1.3
60	do	61 03	5 58	167		49.5	44.3	9.7	6.9
61	Aug. 24	62 01	5 19	114		50.4	45.0	10.2	7.2
62	do	61 59	4 38	125		49.6	44.6	9.8	7.0
63	do	61 57	4 02	317		49.0	30.3	9.4	— 0.9
64	Aug. 25	61 21	3 44	640		49.7	30.0	9.3	— 1.1
65	Aug. 26	61 10	2 21	345		52.0	30.0	11.1	— 1.1
66	do	61 15	1 44	267		52.4	45.7	11.3	7.6
67	Aug. 27	60 32	0 29	64		51.9	49.1	11.0	9.5

Dredging stations of the Porcupine, 1869—Continued.

Serial number.	Date.	Latitude.	Longitude.	Depth.	Kind of bottom.	Temperatures Fahrenheit.		Temperatures centigrade.	
						Sur- face.	Bot- tom.	Sur- face.	Bot- tom.
		North.	East.	Fath.		°	°	°	°
68	August	60 23	0 33	75	-----	52.5	44.0	11.4	6.7
69	..do	60 01	0 18	67	-----	53.5	43.8	12.0	6.5
		West.							
70	Aug. 28	60 04	0 21	66	-----	53.4	45.1	11.9	7.3
71	Sept. 1	60 17	2 53	103	-----	53.0	48.6	11.6	9.2
72	..do	60 20	3 05	76	-----	52.3	43.8	11.3	9.4
73	..do	60 29	3 06	84	-----	52.7	48.8	11.5	9.4
74	..do	60 39	3 09	203	-----	52.6	47.6	11.4	8.7
75	..do	60 45	3 06	250	-----	51.5	41.9	10.8	5.5
76	Sept. 2	60 36	3 58	344	-----	50.3	29.7	10.1	-1.1
77	..do	60 34	4 40	500	-----	50.9	29.8	10.5	-1.2
78	Septemb'r	60 14	4 30	290	-----	52.2	41.5	11.2	5.3
79	..do	59 44	4 44	76	-----	52.1	48.9	11.2	9.4
80	..do	59 49	4 42	92	-----	53.2	49.4	11.8	9.6
81	..do	59 54	5 01	142	-----	53.3	49.1	11.8	9.5
82	..do	60 00	5 13	312	-----	52.3	41.4	11.2	5.2
83	..do	60 06	5 08	362	-----	53.1	37.5	11.7	3.0
84	Sept. 4	59 34	6 34	155	-----	54.3	49.1	11.4	9.5
85	..do	59 40	6 34	190	-----	53.9	48.6	12.1	9.3
86	..do	59 48	6 31	445	-----	53.6	30.1	12.0	-1.0
87	Sept. 6	59 35	9 11	767	-----	52.5	41.4	11.4	5.2
88	..do	59 26	8 23	705	-----	53.5	42.6	12.0	5.9
89	Sept. 7	59 38	7 46	445	-----	53.1	45.5	11.7	7.5
90	..do	59 41	7 34	458	-----	53.1	45.2	11.7	7.3
VI	..do	60 45	4 49	510	-----	52.0	31.7	11.1	-0.2
VII	..do	60 07	5 21	500	-----	51.0	30.2	10.6	-1.0
VIII	..do	60 10	5 59	550	-----	53.0	29.8	11.7	-1.2
X	..do	60 28	6 55	500	-----	51.0	30.8	10.6	-0.7
XI	..do	60 30	7 16	450	-----	50.0	31.2	10.0	-0.4
XII	..do	59 36	7 20	530	-----	52.5	44.8	11.4	7.1
XIV	..do	59 59	9 15	650	-----	53.0	42.5	11.7	5.8
XV	..do	60 38	11 07	570	-----	52.0	43.5	11.1	6.4
XVII	..do	59 49	12 36	620	-----	52.0	43.5	11.1	6.4

DREDGING AND SOUNDING STATIONS OF THE PORCUPINE,
1870.

The dredgings of the *Porcupine* in 1870, like those of 1869 and those of the *Lightning* in 1868, were undertaken at the request of the Royal Society to extend the examination of the deep-sea bottom to the south of Europe and the Mediterranean. Two cruises were made, the first under the scientific direction of Mr. Gwyn Jeffreys, accompanied by Mr. Josua Lindahl and Mr. W. L. Carpenter, extending from Falmouth to Gibraltar, and the second under W. B. Carpenter, assisted by Mr. Lindahl and Mr. P. H. Carpenter, exploring the western basin of the Mediterranean between Gibraltar and Malta, in order to determine its physical and biological relations to the Atlantic, with special reference to the Gibraltar current. The temperature observations made on this second cruise, showing an almost absolute uniformity of temperature from the depth of about 100 fathoms (or that of the Straits of Gibraltar) to the greatest depths reached (1,743 fathoms), shed a most important light upon the phenomena of ocean basins inclosed by shallow barriers, such as the Mediterranean, the Caribbean Sea, Gulf of Mexico, and Sooloo Sea, as contrasted with those of the open ocean. Thus, on this season's work, the six temperatures taken below 1,000 fathoms in the Mediterranean (ranging from 1,328 to 1,743 fathoms) were all between

54.7° and 56°, and one at 112 fathoms giving 55.5°, whilst in the Atlantic, almost in the same latitude, depths of 1,095 and 1,065 fathoms gave 39.7° and one of 128 fathoms, a little farther north, 52.5°. The report on the expedition, by Mr. J. Gwyn Jeffreys and Dr. W. B. Carpenter, forms No. 125 of the Proceedings of the Royal Society, December 8, 1870. There appear to be some discrepancies between the numbers assigned to the stations in the Mediterranean in the detailed description of the dredgings and those given in the list of stations and on the charts, but as the latter two series agree the others are probably erroneous. Care, therefore should be taken in making use of the lists of animals dredged to see that they really belong to the station ascribed to them in the body of the text. The explorations of the first cruise (No. 1 to 38) extended from July 7 to August 5, 1870, and those of the second cruise from August 15 to October 1.

Dredging and sounding stations of the Porcupine, 1870.

Station No.	Latitude.	Longitude.	Depth.	Temperatures.		Locality.
				Surface.	Bottom.	
	North.	West.	Fathoms.	°	°	
1	48 38	16 15	567	-----	-----	South of Ireland.
2	48 37	10 09	305	61.5	48.5	Do.
3	48 31	10 03	690	-----	-----	Do.
4	48 32	9 59	717	61.5	45.3	Do.
5	48 29	9 45	100	62.3	51.5	Do.
6	48 26	9 44	358	62.0	50.3	Do.
7	48 18	9 11	93	61.0	51.3	Do.
8	48 13	9 11	257	60.7	50.0	Do.
9	48 06	9 18	539	64.0	48.0	Do.
10	42 44	9 23	81	60.5	53.5	Between Cape Finisterre and Vigo.
11	42 32	9 24	332	60.5	51.5	Do.
12	42 20	9 17	128	61.5	52.5	Do.
13	40 16	9 37	220	64.5	52.0	Between Oporto and Lisbon.
14	40 06	9 44	469	65.3	51.5	Do.
15	40 02	9 49	722	67.5	49.7	Do.
16	39 55	9 56	994	69.5	40.3	Do.
17	39 42	9 43	1,095	68.0	39.7	Do.
17a	39 39	9 39	740	67.5	49.3	Do.
18	39 29	9 44	1,065	65.0	39.7	Do.
19	39 27	9 39	248	64.7	51.7	Do.
21	38 19	9 30	620	67.3	50.5	Southwest of Lisbon.
22	38 15	9 33	718	66.3	52.0	Do.
23	37 20	9 30	802	66.5	49.3	Northwest of Cape St. Vincent.
24	37 19	9 13	292	67.5	52.7	Do.
25	37 11	9 07	374	69.7	53.5	Do.
26	36 44	8 08	364	71.7	52.7	Between Cape St. Vincent and Cadiz.
27	36 37	7 33	322	73.0	51.3	Do.
28	36 29	7 16	304	71.5	53.3	Do.
29	36 20	6 47	227	73.3	55.0	Southwest of Cadiz.
30	36 15	6 52	386	73.0	52.7	Do.
31	35 56	7 06	477	71.3	50.5	Off Straits of Gibraltar.
32	35 41	7 08	651	71.5	50.0	Do.
33	35 33	6 54	554	72.0	49.7	Do.
34	35 44	6 53	414	71.7	50.0	Do.
35	35 39	6 38	335	73.5	51.5	Do.
36	35 35	6 26	128	75.0	55.0	Do.
37	35 50	6 00	190	72.0	53.7	In Straits of Gibraltar.
38	35 58	5 26	503	71.7	54.0	Do.
39	35 59	5 27	517	*66.0	55.5	Do.
40	36 00	4 40	586	74.5	55.0	Between Gibraltar and Oran.
41	35 57	4 12	730	74.5	55.0	Do.
42	35 45	3 57	790	74.0	54.0	Do.
43	35 24	3 54	162	74.7	55.0	Do.
44	35 42	3 01	455	70.0	55.0	Do.
45	35 36	2 29	207	72.7	54.7	Do.
46	35 39	1 56	493	73.5	55.5	Do.
47	37 25	1 10	845	69.5	54.7	South of Cartagena.
48	37 11	0 31	1,328	73.5	54.7	Do.

* These temperatures are the averages of the day.

Dredging and sounding stations of the Porcupine, 1870—Continued.

Station No.	Latitude.	Longitude.	Depth.	Temperatures.		Locality.
				Surface.	Bottom.	
	<i>North.</i>	<i>West.</i>	<i>Fathoms.</i>	°	°	
49	36 29	0 31	1,412	71.5	54.7	Between Cartagena and Oran.
50			51	*74.4		Coast of Algiers.
50a			152			
50b			510			
		<i>East.</i>				
51	36 55	1 10	1,415	75.0	54.7	Off coast of Algiers.
52			660	*76.2		Coast of Algiers.
52a			590			
53	36 53	5 55	112		55.5	Do.
54	37 41	6 27	1,508	76.0	55.0	Off coast of Algiers.
55	37 30	6 51	1,456	76.5	55.0	Do.
56	37 03	11 36	390	78.0	56.5	Between Cape Bon and Pantellaria.
57	36 06	13 10	224	*76.8		South of Sicily.
58	36 43	13 36	266	75.5	56.5	Do.
59	36 32	14 12	445	76.5	56.5	Do.
60	36 31	15 46	1,743	74.0	56.0	Southeast of Sicily.
61	38 26	15 32	392	72.5	55.7	Northeast of Sicily.
62	38 38	15 21	730	72.5	55.3	Do.
63			181	68.0	54.7	Straits of Gibraltar.
64			460	65.6	54.7	Do.
65			198	63.0	54.5	Off Straits of Gibraltar.
66			147	69.0		Do.
67			188	73.0	55.3	Do.

* These temperatures are the averages of the day.

DREDGINGS OF THE SHEARWATER, 1871.

In 1871 the steamer *Shearwater* made some dredgings on the coral banks between Sicily and Cape Bon, in depths of not more than about 200 fathoms. Dredging was not the main object of the expedition and no record exists, so far as is known, of the precise localities.

SOUNDING AND DREDGING STATIONS OF THE VALOROUS, 1875.

The *Valorous* was a war-steamer sent as a store-ship with the British North-Polar Expedition of 1875 (the *Alert* and *Discovery*). As it was to return directly from Disco, Greenland, the Royal Society requested the Government to permit Mr. J. Gwyn Jeffreys and an assistant, Mr. Herbert P. Carpenter, to make the voyage, so as to undertake natural history observations both at Disco and on the *return* voyage. The reports on the dredgings, etc., between Davis's Straits and England by Mr. Jeffreys, Dr. William B. Carpenter, Rev. A. F. Norman, Dr. W. C. McIntosh, Professor Allman, Professor Duncan, Prof. George Dickie, and Mr. R. Etheridge were published in No. 173 of the Proceedings of the Royal Society, 1876. The first dredging was made about July 22 and the last on August 23, 1875. In the following table the letter D. indicates a dredging, S. T. a serial temperature. At the other stations soundings only were made.

Sounding and dredging stations of the Valorous, 1875.

Serial No.	Latitude N.	Longitude W.	Depth.	Bottom temperature.	Kind of observation.	Nature of bottom.	Locality.
	° ' "	° ' "	Fath.	°			
1	70 30	54 41	175	-----	D.	Sand, mud	North of Disco Island.
2	70 27	55 00	85	-----	D.	Gravel, stone	Do.
3	69 31	56 01	100	-----	D.	Mud	West of Disco Island.
4	67 56	55 27	20	-----	D.	Broken barnacles, shells	In Davis's Straits.
5	66 55	55 30	57	-----	D.	Rock, sand, shells	Do.
6	64 05	56 47	410	34.6	D, S. T.	Sand, mud	Do.
7	63 09	56 43	1,100	36.4	D, S. T.	Clay, mud	Do.
8	62 06	55 56	1,350	34.6	-----	Mud (blue clay under)	Do.
9	59 10	50 25	1,750	34.0	D.	do	Do.
10	58 14	46 29	1,660	34.3	S. T.	Fine sand	SW. of Cape Farewell.
11	57 50	44 52	1,860	33.4	-----	Globigerina ooze	South of Cape Farewell.
12	56 11	37 41	1,450	36.3	D, S. T.	Globigerina ooze, stone	In Atlantic Ocean.
12	56 01	34 42	690	38.2	D.	Globigerina ooze	Do.
14	55 58	31 41	1,230	36.8	-----	Mud	Do.
15	55 58	28 42	1,485	36.5	S. T.	Clay, blue mud	Do.
16	55 10	25 58	1,785	36.7	D.	Globigerina ooze (blue mud under)	Do.

DREDGING STATIONS OF THE KNIGHT ERRANT, 1880.

The dredgings of the British steamer *Knight Errant* were made in the Färöe Channel between the Färöe Islands and the north of Scotland, covering a part of the same ground that was explored by the *Lightning* in 1868, and defining the position of the submarine barrier by which the so-called warm and cold areas of the Färöe Channel are divided from each other. The report of the expedition was published in the Proceedings of the Royal Society of Edinburgh, Vol. XI, pp. 638-720, read May 15, 1882. The dredgings were under the scientific charge of Mr. John Murray, of the *Challenger* expedition.

Dredging stations of the Knight Errant.

Serial No.	Date.	Latitude N.	Longitude W.	Depth.	Kind of bottom.	Temperatures.	
						Surface.	Bottom.
		° ' "	° ' "	Fath.		°	°
1	July 27	60 04	7 37	305	Mud	54.8	46.5
2	July 28	60 29	8 19	375	do	53.0	31.0
3	Aug. 3	59 12	5 57	53	-----	-----	-----
4	Aug. 10	59 33	7 14	555	Mud	57.0	45.0
5	Aug. 11	59 26	7 19	515	Ooze	56.6	44.0
6	do	59 37	7 19	530	do	57.0	-----
7	do	59 37	7 19	530	do	57.0	-----
8	Aug. 17	60 03	5 51	540	do	56.5	28.0

DREDGING STATIONS OF THE TRITON, 1882.

The dredgings of the British surveying steamer *Triton* in 1882 were, like those of the *Knight Errant* in 1880, directed towards the further exploration of the Färöe Channel, and covered nearly the same ground. They were also under the scientific charge of Mr. John Murray, and Mr. J. Gwyn Jeffrey's report on the mollusca obtained was published in the Proceedings of the Zoological Society of London, June 19, 1883, from which these positions have been taken.

Dredging stations of the Triton, 1882.

Serial No.	Latitude N.	Longitude W.	Depth.	Temperature of bottom.	Remarks.	Area.
	° ' "	° ' "	<i>Fathoms.</i>	° ' "		
1	59 51 30	6 21 00	240	47.5-47.6	On the ridge.....	
2	59 37 30	6 21 00	530	46.2	West of ridge.....	Warm.
3	60 39 30	9 06 00	87	49.5	Färöe banks.....	
*4	60 22 40	8 21 00	327-430	31.5-32.0	East of ridge.....	Cold.
†5	60 11 45	8 15 00	433	43.5	West of ridge.....	Warm.
6	60 09 00	7 16 30	466	29.5-30.0	East of ridge.....	Cold.
7	60 19 00	7 10 00	585	29.9-30.5	do.....	Do.
8	60 18 00	6 15 00	640	30.0	do.....	Do.
9	60 05 00	6 21 00	608	30.0	do.....	Do.
10	59 40 00	7 21 00	516	46.0-46.5	West of ridge.....	Warm.
11	59 39 30	7 13 00	555	45.5	do.....	Do.
12	60 31 00	7 34 00	580	31.0	East of ridge.....	Cold.
13	59 51 02	8 18 00	570	45.7	West of ridge.....	Warm.

* Partly on the ridge.

† The trawl had been carried right over the ridge and came up in the cold area.

DREDGINGS OF THE SWEDISH FRIGATE JOSEPHINE, 1869.

These dredgings extended from the coast of Portugal to the Azores, and thence across the Atlantic to America. They were under the charge of Messrs. Smith and Ljungmans. I have been unable to meet with any details as to the precise positions or character of the dredgings.

CLASSIFIED LIST OF ALL DREDGINGS OF OVER 60 FATHOMS MADE BY U. S. FISH COMMISSION NORTH OF BAHAMAS.

Dredgings made in the Gulf of Maine are not given, nor those made *inside* the Banks situated off the coast of Nova Scotia.

The others are designated as follows:

S.—Off Savannah to Bahamas. N. Lat. 27° 30' to 34° 00'.

H.—Off Cape Hatteras. N. Lat. 34° 00' to 36° 30'.

C.—Off Chesapeake Bay. N. Lat. 36° 30' to 38° 00'.

D.—Off Delaware Bay. N. Lat. 38° 00' to 39° 00'.

M.—South of Block Island, Martha's Vineyard, and Nantucket.

G.—South to east of St. George's Bank.

N.—South and southeast of Newfoundland and on the Flemish Cap.

60 to 100 fathoms:

H.—2008, 2267, 2268, 2298, 2595, 2600, 2602, 2603.

C.—2005, 2011, 2012, 2265, 2421, 2422, 2424.

M.—865, 866, 867, 872, 874, 920, 921, 922, 941, 950, 1091, 1109, 1117, 1118, 2031, 2032, 2057, 2085, 2086, 2087, 2177, 2197, 2198, 2199, 2243, 2244, 2247, 2248.

G.—83 B., 84 B., 2065, 2066, 2079, 2524, 2525.

N.—2432, 2692, 2693, 2694, 2698, 2699, 2700, 2701.

100 fathoms:

H.—2266, 2425, 2426, 2592, 2601.

C.—2004.

D.—1046, 2746.

100 fathoms—continued.

M.—871, 873, 875, 876, 877, 923, 949, 1027, 1035, 1036, 1040, 1107, 1108, 1110, 1111, 1119, 1151, 1152, 2053, 2054, 2055, 2056, 2091, 2245, 2246, 2505, 2512, 2522, 2558, 2559, 2560.

G.—2060, 2061, 2064, 2067, 2069, 2070, 2071, 2523, 2526, 2527.

N.—2477, 2481, 2695, 2696, 2704.

150 fathoms:

H.—2109, 2310, 2593, 2594, 2613, 2614.

C.—897, 2020, 2170, 2264, 2423.

D.—1043, 1047.

M.—868, 870, 878, 924, 940, 942, 943, 944, 1034, 1038, 1039, 1097, 1098, 1115, 1116, 1150, 2026, 2088, 2089, 2090, 2184, 2185, 2200, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2555, 2557, 2582, 2583.

G.—96 B., 97 B., 2062, 2063, 2068.

N.—2431, 2472, 2474, 2479, 2488, 2703.

200 fathoms:

C.—2021.

D.—1044, 2745.

M.—869, 926, 945, 951, 1025, 1026, 1032, 1033, 1092, 1113, 1114, 1120, 1121, 1137, 1138, 1153, 1154, 2027, 2028, 2092, 2183, 2548, 2556, 2590, 2591.

N.—2430, 2469, 2470, 2471, 2473, 2475, 2476, 2478, 2480, 2483, 2484, 2485, 2486, 2697, 2702.

250 fathoms:

S.—2624, 2625, 2665, 2666, 2667, 2673.

D.—2232.

M.—878, 879, 895, 925, 939, 1112, 2024, 2025, 2178, 2183, 2262, 2589, 2686.

300 fathoms:

S.—2668, 2670, 2671, 2672, 2674, 2675.

H.—2299, 2306.

C.—898.

D.—1045.

M.—881, 933, 947, 996, 997, 998, 999, 1031, 1094, 1095, 1096, 1125, 1139, 1142, 2176, 2586.

N.—2482.

350 fathoms:

S.—2626, 2655, 2664, 2669.

M.—1030, 1093, 1122, 2186, 2687.

400 fathoms:

S.—2627, 2661, 2662, 2663, 2676.

C.—2014, 2023, 2171, 2263.

D.—1048, 1049.

M.—893, 894, 952, 994, 995, 1028, 1140, 1141, 2033, 2045, 2046, 2047, 2187, 2212, 2213, 2547, 2554, 2581, 2587.

G.—85 B.

500 fathoms:

S.—2628, 2657, 2658, 2659, 2660, 2677.

H.—2009, 2110.

C.—2001, 2006, 2022.

M.—891, 892, 1029, 1143, 1144, 2043, 2175, 2179, 2180, 2201, 2202, 2214, 2337, 2546, 2561, 2584, 2585, 2588, 2689.

G.—2073.

N.—2427, 2429.

600 fathoms:

S.—2656.

C.—2002, 2003, 2019, 2172.

600 fathoms—continued.

D.—2233, 2744.

M.—937, 1124, 1155, 2030, 2189, 2215, 2236, 2549, 2553, 2630, 2688, 2690, 2722.

G.—2073.

700 fathoms :

S.—2654, 2678.

H.—2300.

C.—2729, 2730.

M.—936, 953, 954, 2181, 2203, 2204, 2235, 2552, 2749.

G.—2528, 2529, 2532.

800 fathoms :

S.—2679.

H.—2115.

C.—2018, 2731, 2734, 2735, 2739.

D.—2721.

M.—935, 1123, 2551, 2691.

G.—2533.

N.—2428.

900 fathoms :

H.—2010, 2111, 2116.

C.—2013, 2728, 2733, 2738, 2741, 2742.

M.—2182, 2217, 2218, 2219, 2238, 2683.

G.—2072, 2075, 2076, 2531, 2709.

Dredgings in 1,000 fathoms or more are not distinguished geographically, but are all between N. lat. $36^{\circ} 06'$ and $41^{\circ} 43'$ and W. long. $65^{\circ} 22'$ and $74^{\circ} 33'$.

1,000 fathoms :

2049, 2050, 2083, 2093, 2094, 2104, 2191, 2206, 2210, 2216, 2231, 2530, 2681, 2682, 2708, 2710, 2740.

1,100 fathoms :

2044, 2051, 2052, 2103, 2192, 2193, 2194, 2195, 2205, 2207, 2209, 2211, 2220, 2550, 2684, 2685, 2707, 2743.

1,200 fathoms :

2029, 2102, 2190, 2196, 2208, 2230, 2534, 2535, 2706, 2727, 2732, 2748.

1,300 fathoms :

2034, 2074, 2077, 2084, 2095, 2705, 2726, 2747.

1,400 fathoms :

2035, 2105, 2229, 2562, 2563, 2564, 2571, 2725.

1,500 fathoms :

2043, 2096, 2106, 2221, 2222, 2711, 2719, 2720.

1,600 fathoms :

2041, 2042, 2100, 2101, 2173, 2174, 2223, 2716, 2717, 2718, 2723, 2724.

1,800 fathoms :

2036, 2037, 2568, 2569, 2570, 2572, 2573, 2574, 2575, 2712, 2713, 2714, 2715.

2,000 fathoms :

2038, 2097, 2226, 2565.

2,200 fathoms :

2040, 2098, 2227.

2,400 fathoms :

2039.

2,600 fathoms :

2223, 2224, 2225, 2566, 2567.

2,949 fathoms :

2099.

SERIES OF TEMPERATURES TAKEN BY THE SPEEDWELL IN 1877, 1878, AND 1879.

[A + above the temperature indicates that it is that of the bottom, when that precise depth is not in the table; a Δ before the temperature indicates that the precise depth at which it was taken will be found in column A.]

Temperatures.					Depth in fathoms	Latitude.	Longitude.	Serial number.	A.																										
Date.	Air.	Surface.	5 fathoms.	10 fathoms.					15 fathoms.	20 fathoms.	25 fathoms.	30 fathoms.	35 fathoms.	40 fathoms.	45 fathoms.	50 fathoms.	55 fathoms.	60 fathoms.	70 fathoms.	80 fathoms.	90 fathoms.	100 fathoms.	110 fathoms.	120 fathoms.											
1877. Aug. 6	69	63.5	63.5	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
6	69.5	64.5	64.5	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
6	70	64.5	64.5	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
28	68.5	63.5	63.5	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
29	67.5	66.5	66.5	67	60.5	58.5	56.5	54.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5
29	68.5	68	68	68	60.5	58.5	56.5	54.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5
Sept. 1 1878.	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5
July 23	68	63	63	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
23	68	62	62	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
23	68	62	62	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
23	70	63	63	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
26	72	65	65	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
29	70	65	65	60.5	59.5	57.5	55.5	52.5	50.5	48.5	46.5	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	
Aug. 1	63	57.5	57.5	53.5	51.5	49.5	47.5	45.5	43.5	41.5	39.5	37.5	35.5	33.5	31.5	29.5	27.5	25.5	23.5	21.5	19.5	17.5	15.5	13.5	11.5	9.5	7.5	5.5	3.5	1.5	-0.5	-2.5	-4.5	-6.5	
1	63.5	56.5	56.5	54	51	49	47	45	43	41	39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1	-1	-3	-5	-7	
3	67.5	56.5	56.5	54	51	49	47	45	43	41	39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1	-1	-3	-5	-7	
3	66	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5
3	70	61	61	56.5	51.5	46.5	41.5	36.5	31.5	26.5	21.5	16.5	11.5	6.5	1.5	-3.5	-8.5	-13.5	-18.5	-23.5	-28.5	-33.5	-38.5	-43.5	-48.5	-53.5	-58.5	-63.5	-68.5	-73.5	-78.5	-83.5	-88.5	-93.5	-98.5
8	153a			17		62	52	48		44.5	+																								
15	154	42 35	70 31	38	69.5	64.5	57.5		42.5	Δ 45	44.5	42.5	40.5	38.5	36.5	34.5	32.5	30.5	28.5	26.5	24.5	22.5	20.5	18.5	16.5	14.5	12.5	10.5	8.5	6.5	4.5	2.5	0.5	-1.5	-3.5

*Estimated.

[illegible]

* Estimated.

SERIES OF TEMPERATURES TAKEN BY THE SPEEDWELL IN 1877, 1878, AND 1879—Concluded.

[illegible]

TEMPERATURE OBSERVATIONS BY THE SPEEDWELL, SEPTEMBER 25 AND 29, 1879.

Date.	Serial number.	Locality.	Depth in fathoms.	Temperatures.												
				Air.	Surface.	5 fathoms.	10 fathoms.	15 fathoms.	20 fathoms.	25 fathoms.	30 fathoms.	35 fathoms.	40 fathoms.	45 fathoms.	50 fathoms.	
1879. Sept. 25	1	Long Point WNW. $\frac{3}{4}$ mile.....	17	62.8	57.8	57.2	54.1	46.5	45	44.2						
25	2	Wood End Light NW. $\frac{1}{4}$ mile.....	21	62.5	57.2	56.5	55.1		47.8							
29	3	Wood End Light NE. $\frac{1}{4}$ mile.....	22	63	57	56.5	55.8		47							
29	4	Wood End Light N. 80° E. 2 miles.....	24 $\frac{1}{2}$	63.5	57.5				45							
29	5	Wood End Light N. 55° E. $\frac{3}{4}$ miles.....	21	63.5	57.2	56.5	46.5		45							
29	6	Wood End Light N. 48° E. $\frac{5}{8}$ miles.....	21	63.5	57.5	56.2	51		45.2							
29	7	Wood End Light N. 45° E. $\frac{7}{8}$ miles.....	19 $\frac{1}{2}$	63.5	58.5	57.5	53.1		46.1							
29	8	Wood End Light N. 50° E. $\frac{7}{8}$ miles.....	19 $\frac{1}{2}$	63.5	58.5	57.5	56		46							
29	9	Wood End Light N. 66° E. $\frac{6}{8}$ miles.....	24	63.5	59.2	57	54.1		44.8							
29	10	Wood End Light N. 85° E. 6 miles.....	26	69.5	58	57	55.1		44							
29	11	Wood End Light S. 75° E. $\frac{5}{8}$ miles.....	30	69.5	58.5	57	55.8		46		44					
29	12	Race Point Light S. 71° E. $\frac{3}{4}$ miles.....	33	66	67.8	56.2	55.8		48			44				
29	13	Race Point Light S. 45° E. $\frac{4}{8}$ miles.....	34	66	56.2	56	54.5		51.1				44.2			
29	14	Race Point Light S. 32° E. 6 miles.....	11	67	58	57	51.5									
29	15	Race Point Light S. 13° E. $\frac{5}{8}$ miles.....	23	63.5	57.2	56	54.5			52.5						
23	16	Race Point Light S. 10° W. 6 miles.....	19	62.5	58	56	54		49							
29	17	Race Point Light S. 30° W. $\frac{6}{8}$ miles.....	26	63	57	56.2	54.5			46.5						
29	18	Race Point Light S. 51° W. $\frac{8}{8}$ miles.....	28	62.5	57	56.5	55				45					
29	19	Race Point Light S. 58° W. $\frac{9}{8}$ miles.....	49	62.8	57.8	57.2	54.5		48			44				43.2

TEMPERATURE OBSERVATIONS BY THE SPEEDWELL SEPTEMBER 25 AND 29, 1879—Continued.

Date.	Serial number.	Locality.	Depth in fathoms.	Temperatures.												
				Air.	Surface.	5 fathoms.	10 fathoms.	15 fathoms.	20 fathoms.	25 fathoms.	30 fathoms.	35 fathoms.	40 fathoms.	45 fathoms.	50 fathoms.	
1879. Sept. 29	20	Race Point Light S. 70° W. 9½ miles	32	62.5	57	55.2	51.5	°	°	°	47	°	°	°	°	°
29	21	Race Point Light S. 66° W. 5½ miles	21	64	57	55.2	51	°	45	°	°	°	°	°	°	°
29	22	Race Point Light S. 42° W. 5½ miles	28	62.8	56.5	56.2	46.1	°	°	°	46	+	°	°	°	°
29	23	Race Point Light S. 18° W. 2½ miles	33	.....	57.5	57	56	°	45	°	°	°	°	°	°	°
29	24	Race Point Light S. 83° E. 2 miles	30	61	58	58	57	°	45	°	44	44	°	°	°	°
29	25	Race Point Light N. 16° E. 2½ miles	27	61	58	59	56.8	°	°	°	°	44.9	+	°	°	°

A series of temperature observations was made by the Speedwell, off Provincetown, on September 25 and 29, 1879. These had separate numbers from No. 1 to No. 25, and no dredgings or natural-history observations were made. Their localities, etc., and the serial temperatures taken on those days are therefore placed at the end of the tables of serial temperatures taken in the course of dredging expeditions.

II.—Serial temperature, U. S. Fish Commission steamer Albatross, Lieut. Commander Z. L. Tanner, U. S. Navy, commanding, 1883—Continued.

Serial number.	Date.	Locality.		Depth.	Air.	Surface.	Fathoms.														Bottom.									
		Latitude N.	Longitude W.				5	10	15	20	25	40	60	100	200	300	400	500	600	700		800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600
2093	1883.			Fathoms.																										
Sept. 21		39 42 50	71 01 20	1,000	75	69	68	68	68	67½	67	47½	51	52½																39
Sept. 21		39 44 30	71 04 00	1,022	70	68	68	68	67½	67	67	67	51	52½																38½
Sept. 30		39 29 00	70 58 40	1,342	71½	69	68	67	67	67	67	66	59	63½	53½	47	40½	40	39½	39½	39	38½								37½
Sept. 30	2095	39 22 20	70 52 20	1,451	70	68	67½	67	68	68	67	66	59	63½	53½	47	40½	40	39½	39½	39	38½								37½
Sept. 30	2096	39 22 20	70 52 20	1,451	70	68	67½	67	68	68	67	66	59	63½	53½	47	40½	40	39½	39½	39	38½								37½
Oct. 1		37 56 20	70 57 30	1,917	73	72½	68	68	68	68	68	67	66	59	63½	53½	47	40½	40	39½	39½	39	38½							37½
Oct. 1		37 40 30	70 37 30	2,221	73	72½	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72							37
Oct. 3		39 18 30	68 24 00	1,086	61	67	69	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68							39
Nov. 5		38 44 00	72 38 00	1,209	64	62	62	62	61½	61½	62	62	59	55	53½	43½	40½	40	39½	39	39	38½								39
Nov. 5		38 48 00	72 40 30	1,542	60	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62								39
Nov. 6		37 34 48	73 03 15	1,542	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62								41
Nov. 9		35 16 00	75 02 30	48	76	78	77	78	78	78	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								37
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								66
Nov. 9		35 16 20	75 04 00	34	75	77	77	77	77	77	77	75	68½	63	51½	43½	41	39½	39½	39	39	38½								74
Nov. 9		35 16 20																												

Serial number.	Date.	Position.		Depth.	Character of bottom.	Temperature (degrees).												Bottom.			
		Latitude N.	Longitude W.			Air.	Surface.	25 fathoms.	50 fathoms.	100 fathoms.	200 fathoms.	300 fathoms.	400 fathoms.	500 fathoms.	600 fathoms.	700 fathoms.	800 fathoms.		900 fathoms.	1,000 fathoms.	
	1885.	°	"	'	°	'	"	<i>Fath.</i>													
2393	Mar. 13	28 43 00	87 14 30	525	gy. M.	70	64	65.2	64.0	57.9	56.3	45.7	43.0								41.0
Hyd. 699	Apr. 1	31 54 45	79 17 00	86	gy. M. brk. Sh.	66	69	69.9	68.4	66.3	66.3	60.8									60.3
Hyd. 702	Apr. 3	36 30 00	73 14 00	2,340	bu. Oz.	69	72			559.6	559.6			41.3							36.8
Hyd. 703	Apr. 4	36 45 00	73 28 00	1,646	bu. Oz.	68	66			50.8	49.9			39.6							37.2
Hyd. 704	Apr. 4	36 37 30	73 47 00	1,436	bu. Oz.	61	55	50.8	49.9	52.2	43.0			39.5							37.5
Hyd. 705	Apr. 4	36 57 30	73 47 00	1,208	bu. Oz.	50	52	50.1	44.0	51.3	44.0			39.7							38.7
Hyd. 712	Apr. 5	37 04 30	74 32 00	98	bk. S.	43	49	50.8	48.2												
2542	Aug. 7	40 00 15	70 42 20	129	S. brk. Sh.	73	76	59.8	56.3	49.8	44.0										47.2
Hyd. 849	Aug. 9	39 49 00	70 42 00	452	gy. M.	71	77	59.5	57.0	49.8	44.0										39.6
Hyd. 854	Aug. 10	39 41 00	71 42 00	378	gn. S.	76	77	62.5	45.8	49.0	42.1	40.1									39.3
2564	Aug. 11	39 22 00	71 23 30	1,306	gy. Oz.	79	78	61.6	58.1	53.1	54.2	49.9	40.1	39.4	39.0	39.2	38.8	38.5	41.3		37.3
2565	Aug. 28	38 19 20	69 02 30	2,009	br. & gy. Oz.	72	77	76.8	53.7	53.1	54.2	49.9	40.1	39.4	38.7	39.0	38.6	38.8	38.6		36.2
2566	Aug. 29	37 25 00	68 09 00	2,620	gy. Oz.	75	80	81.2	69.2	66.6	64.6	63.0	59.1	53.7	45.3	40.7	40.2	39.5	39.3		36.4
2571	Sept. 1	40 09 30	67 09 00	1,355	gy. Glob. Oz.	75	82	65.7	60.2	54.8	45.7	41.8	40.0	39.7	38.8	39.8	38.6	38.8	37.8		37.8
2573	Sept. 2	40 34 18	66 09 00	1,742	gy. M. S.	71	71	68.3	61.0	52.8	49.4	42.0	40.2	39.7	39.1	39.4	38.6	38.8	38.1		37.1
2575	Sept. 3	41 07 00	65 26 30	1,710	gy. Oz.	64	71	71.2	59.1	52.8	47.0	41.3	40.2	39.8	39.3	38.7	38.8	38.4	38.0		37.3
2628	Oct. 21	32 24 00	76 55 30	528	gy. M.	70	77	79.9	77.6	59.0	48.0	45.5	40.2								38.5

* 5 fathoms.

+ 10 fathoms.

+ 15 fathoms.

§ 25 fathoms.

|| 50 fathoms.

¶ 250 fathoms.

* 5 fathoms.

† 10 fathoms.

‡ 15 fathoms.

§ 25 fathoms.

|| 50 fathoms.

¶ 250 fathoms.

Record of speed of five trawlings and soundings, July, 1883, U. S. Fish Commission steamer
Albatross, Lieut. Commander Z. L. Tanner, U. S. Navy, commanding.

TRAWL—GOING DOWN.

Fathoms.	Number of station.				
	2038.	2039.	2040.	2041.	2042.
	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
Surface to 100	4 00	5 15	7 20	3 55	4 00
100 to 200	5 00	4 05	4 10	4 30	4 00
200 to 300	5 00	3 50	3 15	4 00	3 45
300 to 400	4 00	4 00	4 25	4 30	5 30
400 to 500	4 40	5 30	9 05	4 30	3 55
500 to 600	4 00	4 45	4 15	4 46	3 30
600 to 700	4 00	3 53	4 00	4 45	3 30
700 to 800	5 20	4 02	3 30	4 47	5 00
800 to 900	4 45	4 15	4 00	4 45	4 00
900 to 1,000	4 10	4 00	3 40	4 47	4 30
1,000 to 1,100	4 05	7 35	4 20	4 47	4 00
1,100 to 1,200	4 50	6 15	3 40	5 05	4 00
1,200 to 1,300	9 20	7 25	4 15	4 20	4 10
1,300 to 1,400	6 00	5 00	4 15	4 20	4 10
1,400 to 1,500	5 50	5 00	3 40	4 20	4 00
1,500 to 1,600	4 30	4 30	4 40	4 30	4 20
1,600 to 1,700	4 30	4 30	4 35	4 40	4 10
1,700 to 1,800	6 00	4 00	7 40	4 25	4 15
1,800 to 1,900	5 15	8 00	6 20	4 20	3 50
1,900 to 2,000	4 15	11 45	5 25	4 10	3 40
2,000 to 2,100	5 05	7 45	5 00	4 10	3 45
2,100 to 2,200	5 00	7 50	5 10	4 10	.....
2,200 to 2,300	4 35	7 00	7 00	*2 00	.....
2,300 to 2,400	4 20	5 00	6 15	.....	.....
2,400 to 2,500	4 00	5 00	7 00	.....	.....
2,500 to 2,600	9 30	6 45	6 45	.....	.....
2,600 to 2,700	5 30	4 50	4 00	.....	.....
2,700 to 2,800 .....	.....	5 00	3 30	.....	.....
2,800 to 2,900 .....	.....	9 55	4 00	.....	.....
2,900 to 3,000 .....	.....	5 00	3 40	.....	.....
3,000 to 3,100 .....	.....	4 20	.....	.....	.....
3,100 to 3,200 .....	.....	6 15	.....	.....	.....
Total time	2 17 30	3 02 15	2 28 40	1 40 32	1 26 00
Average speed per 100 fathoms	5 05	5 42	4 57	4 28	4 06
Depth in fathoms	2, 033	2, 369	2, 226	1, 608	1, 555

*To 2,250 fathoms.

TRAWL—COMING UP.

100 to surface	4 30	5 15	6 00	4 40	3 25
200 to 100	4 00	3 45	3 00	4 40	3 25
300 to 200	4 00	4 00	3 31	4 40	3 25
400 to 300	5 55	5 30	3 31	4 40	3 25
500 to 400	4 00	4 00	3 31	4 40	3 25
600 to 500	4 00	3 30	3 31	4 40	3 25
700 to 600	2 40	4 00	3 31	4 40	3 20
800 to 700	4 15	3 45	3 31	5 45	3 20
900 to 800	3 30	4 00	3 31	4 30	3 20
1,000 to 900	3 00	4 00	3 31	4 25	3 45
1,100 to 1,000	3 00	3 45	3 32	4 55	5 00
1,200 to 1,100	4 00	4 30	4 35	5 10	4 00
1,300 to 1,200	3 30	4 15	4 00	6 15	5 00
1,400 to 1,300	3 30	4 55	4 00	7 00	5 45
1,500 to 1,400	4 00	4 25	4 00	7 00	5 45
1,600 to 1,500	4 15	3 55	4 00	10 00	5 45
1,700 to 1,600	9 00	3 30	3 25	6 45	6 05
1,800 to 1,700	5 00	4 00	3 40	6 48	7 48
1,900 to 1,800	4 45	4 00	4 15	6 48	7 48
2,000 to 1,900	5 00	4 00	10 05	6 48	7 47
2,100 to 2,000	4 30	4 00	5 45	6 48	7 47
2,200 to 2,100	4 30	4 00	5 25	6 45	.....
2,300 to 2,200	4 30	4 00	5 50	5 45	.....
2,400 to 2,300	5 00	4 00	5 30	.....	.....
2,500 to 2,400	4 00	5 00	6 10	.....	.....
2,600 to 2,500	5 00	4 30	12 30	.....	.....
2,700 to 2,600	6 00	4 40	6 45	.....	.....
2,800 to 2,700 .....	.....	4 25	6 45	.....	.....
2,900 to 2,800 .....	.....	5 20	8 30	.....	.....
3,000 to 2,900 .....	.....	5 10	7 00	.....	.....
3,100 to 3,000 .....	.....	6 15	.....	.....	.....
3,200 to 3,100 .....	.....	10 15	.....	.....	.....
Total time	2 00 20	2 24 15	2 32 50	2 14 10	1 40 45
Trawl on bottom	1 14 30	1 47 30	2 37 20	1 51 25	1 26 50
Average speed per 100 fathoms	4 27	4 30	5 05	5 44	4 48

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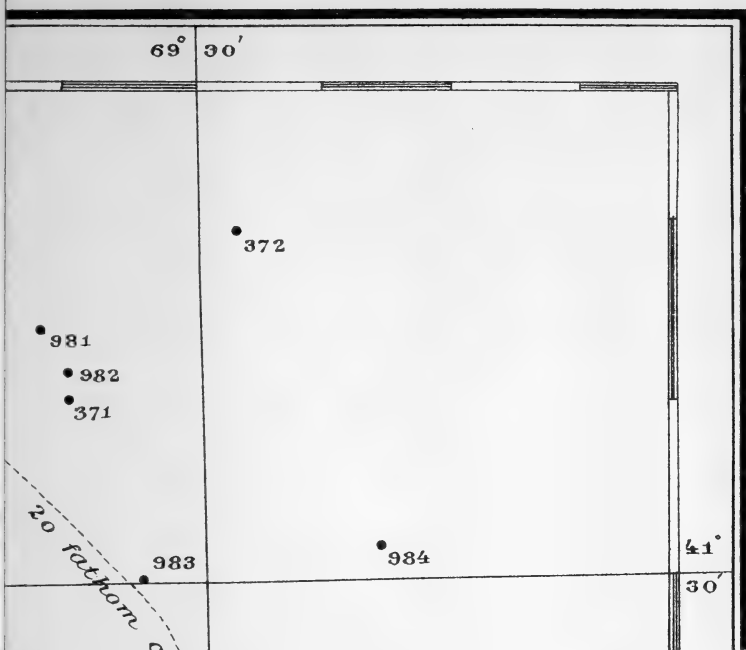
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No. 2.

CHART SHOWING THE POSITIONS
OF THE
DREDGINGS MADE BY THE U.S. FISH COMMISSION
IN
LONG ISLAND, VINEYARD AND NANTUCKET SOUNDS
AND ADJACENT WATERS

FROM 1871 TO 1887.

Prepared by Sanderson Smith.

NOTE

Dredgings Numbered 401-10
414-16, 420-34, 438-44, 460-6,
482-8, 508-14, 542-8, 517
in Fisher's Island Sound.

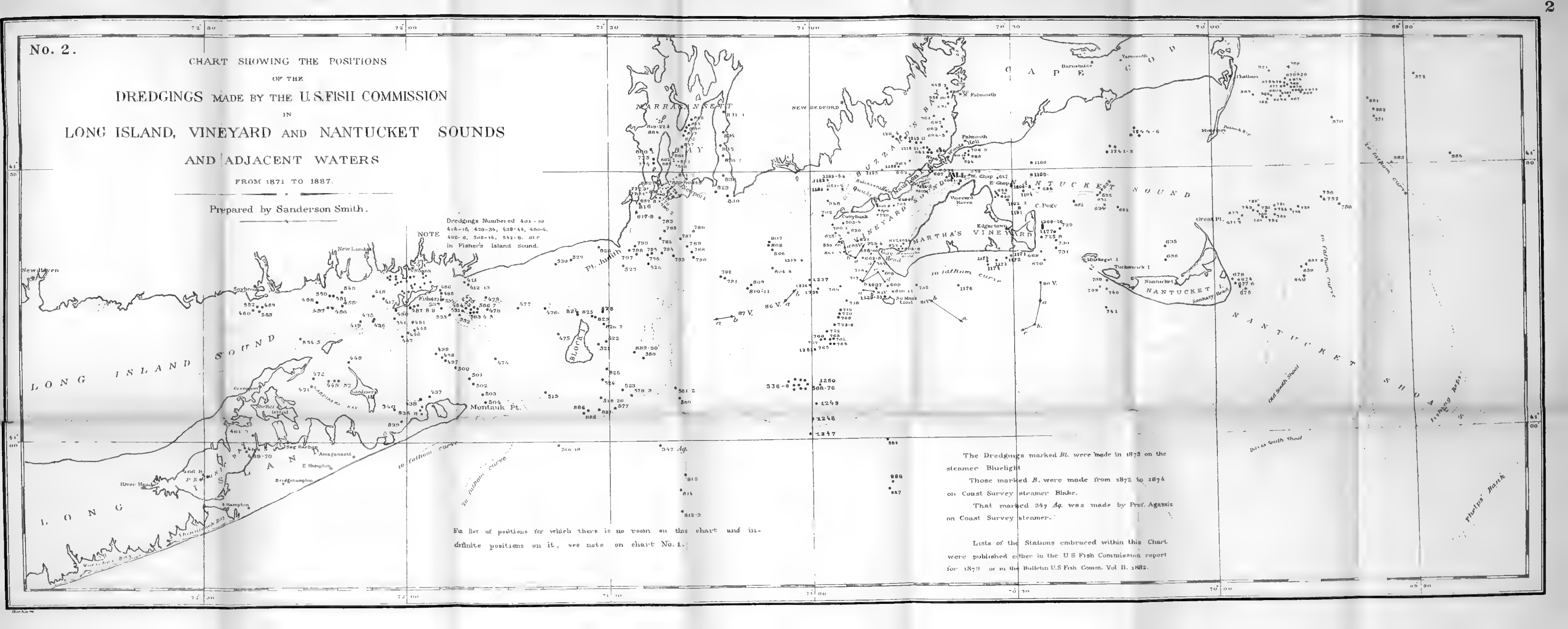
For list of positions for which there is no room on this chart and in-
definite positions on it, see note on chart No. 1.

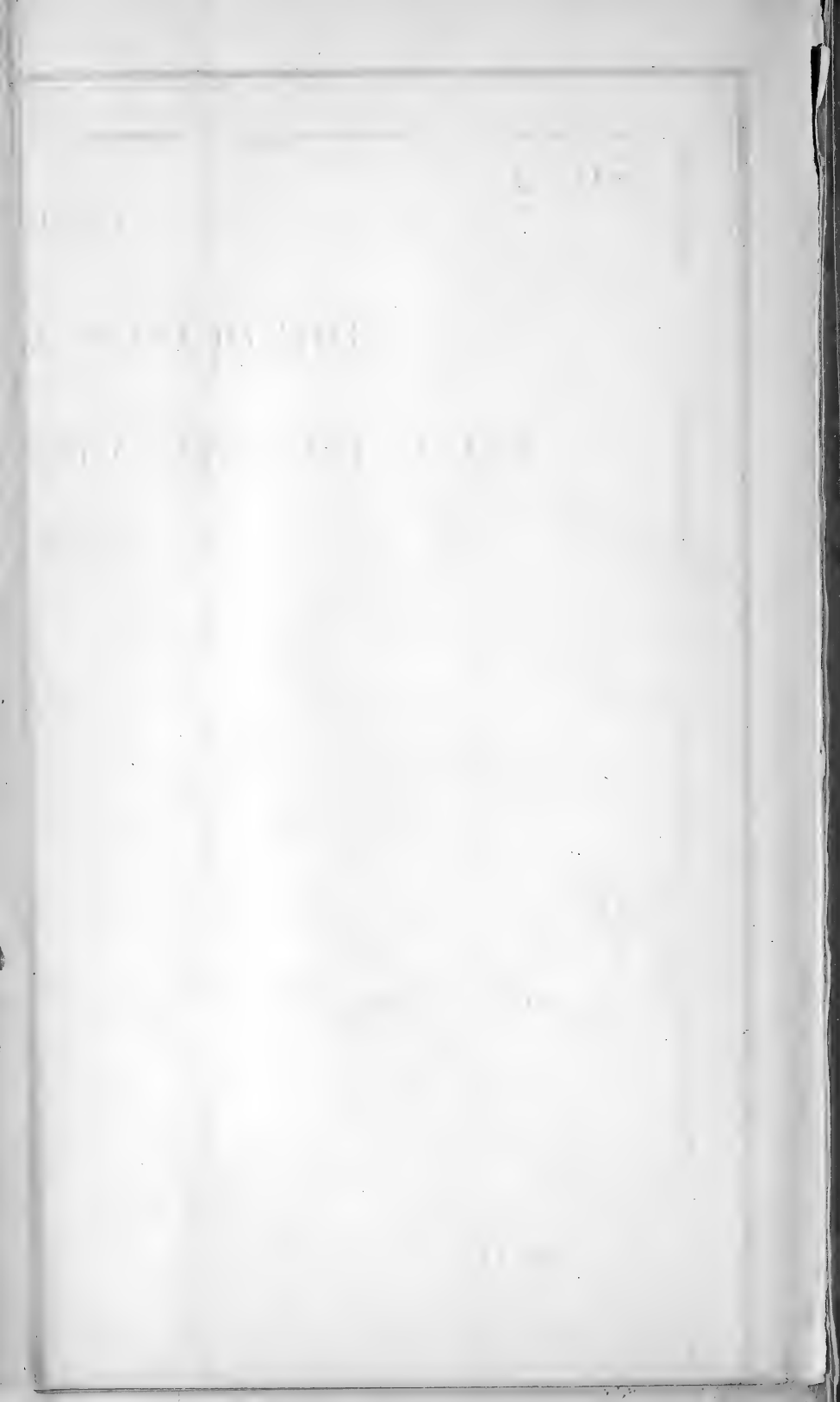
The Dredgings marked BL were made in 1873 on the
steamer Bluebird

Those marked B. were made from 1872 to 1874
on Coast Survey steamer Blake.

That marked 347 Aq. was made by Prof. Agassiz
on Coast Survey steamer.

Lists of the Stations embraced within this Chart
were published either in the U.S. Fish Commission report
for 1879 or in the Bulletin U.S. Fish Comm. Vol. II. 1882.





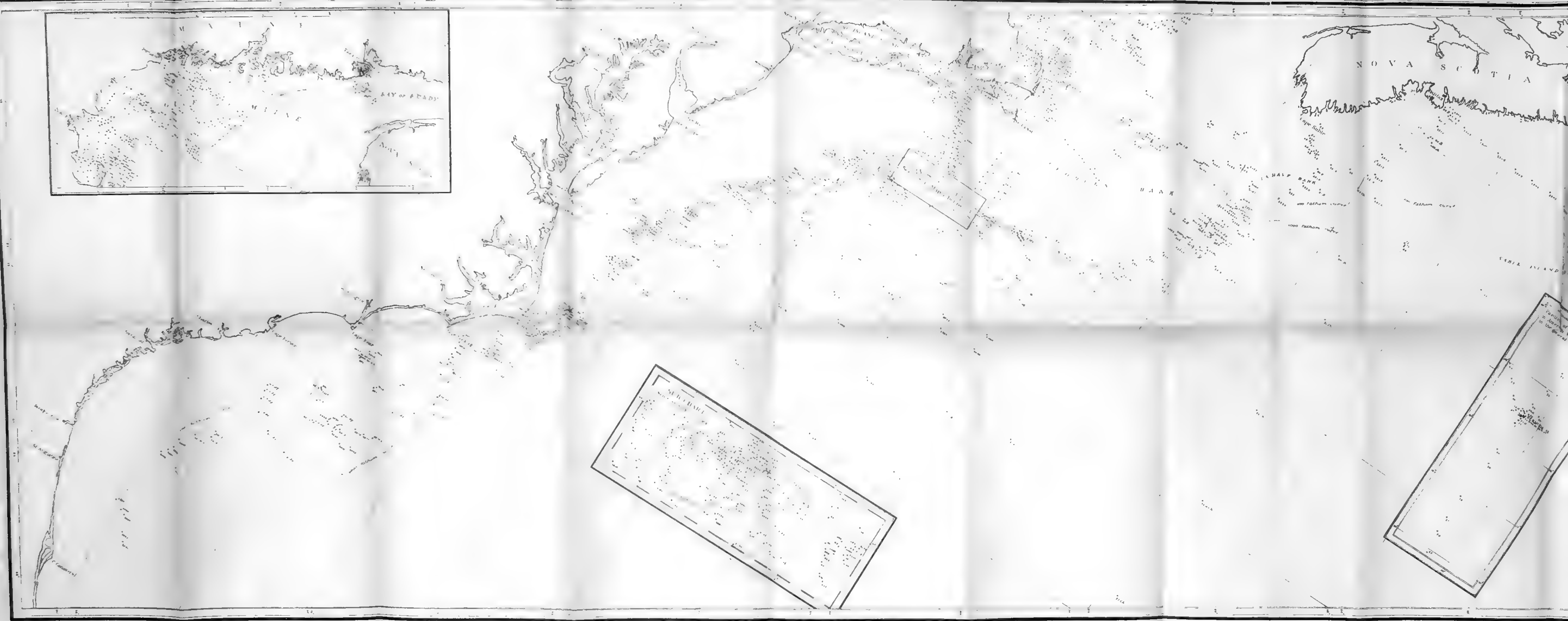


CHART SHOWING THE POSITIONS
OF THE
DREDGINGS MADE BY THE U. S. FISH COMMISSION
IN THE ATLANTIC OCEAN

FROM 1871 TO NOVEMBER 1887.

INCLUDING ALSO THE
DEEP SEA DREDGINGS OF THE U. S. COAST SURVEY
AND THE
BRITISH STEAMER CHALLENGER
IN THE REGION MAPPED.

PREPARED BY SANDERSON SMITH.

About 3800 hauls of the Dredge have been made by the U. S. Fish Commission, of which about 150 were in the Gulf of Mexico and the Caribbean Sea. All Dredgings over 100 fathoms are shown and about one third of the rest.

The Numbers designate the Dredging Stations as entered on the records of the U. S. Fish Commission, except those marked *Ag* made by Prof Agassiz on Coast Survey steamers and those marked *Ch* made by British steamer Challenger.

The Dredging Stations marked *B* were made in 1873 by the U. S. Fish Comm on the steamer Bluebird. Those marked *B* were made from 1872 to 1874 by the U. S. Fish Comm on Coast Survey steamer Blake.

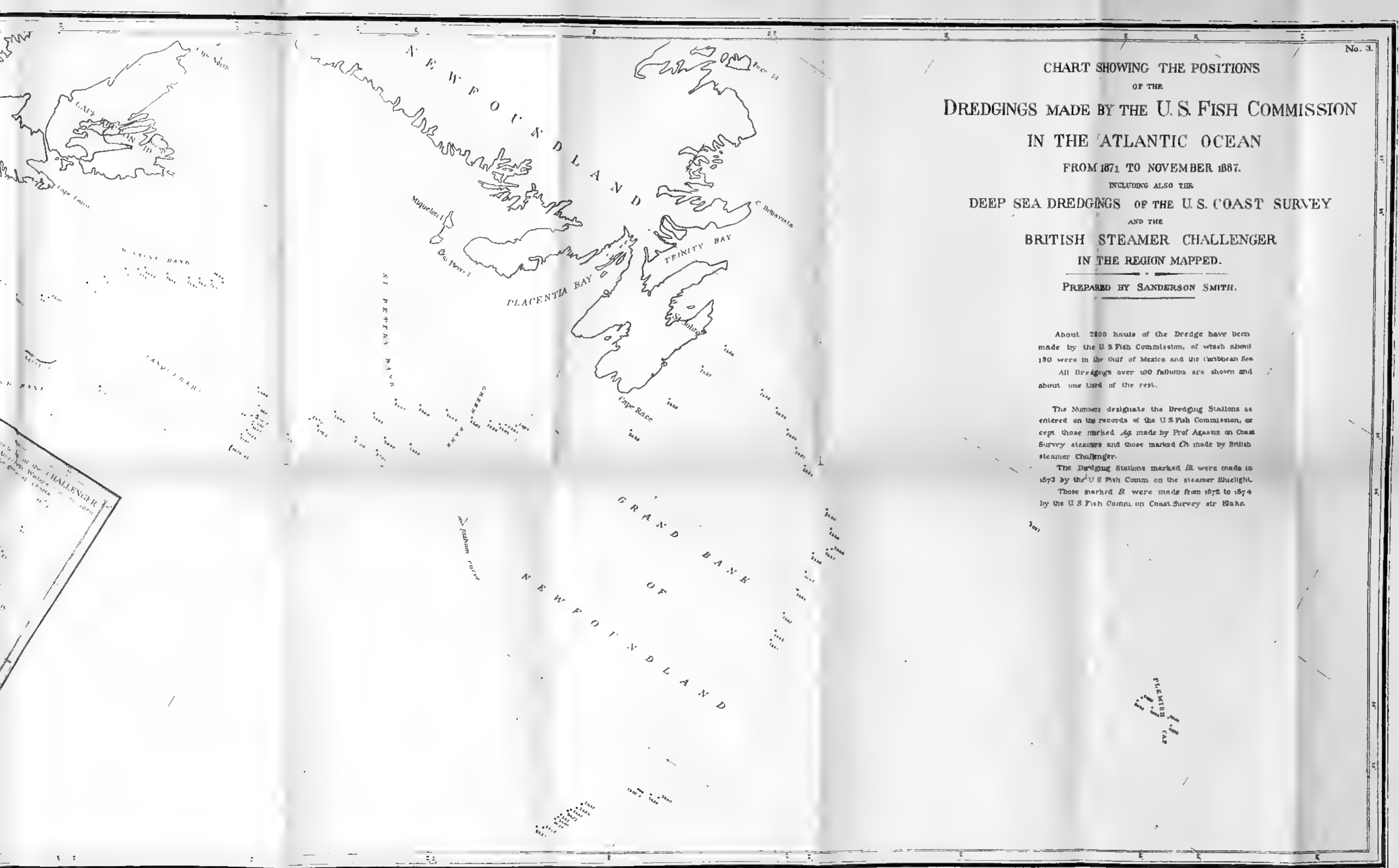


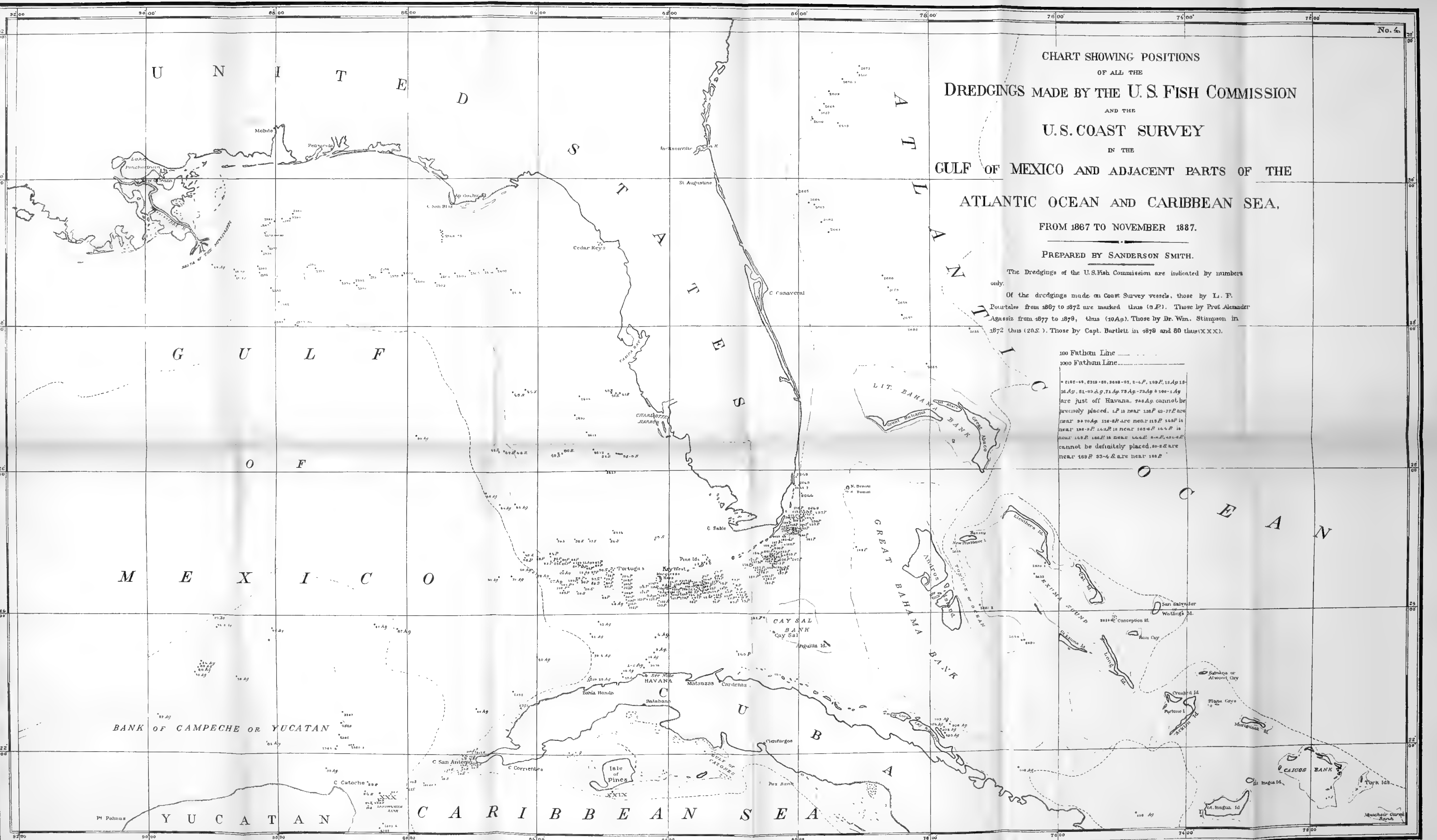
CHART SHOWING POSITIONS
OF ALL THE
DREDGINGS MADE BY THE U. S. FISH COMMISSION
AND THE
U. S. COAST SURVEY
IN THE
GULF OF MEXICO AND ADJACENT PARTS OF THE
ATLANTIC OCEAN AND CARIBBEAN SEA.

FROM 1867 TO NOVEMBER 1887.

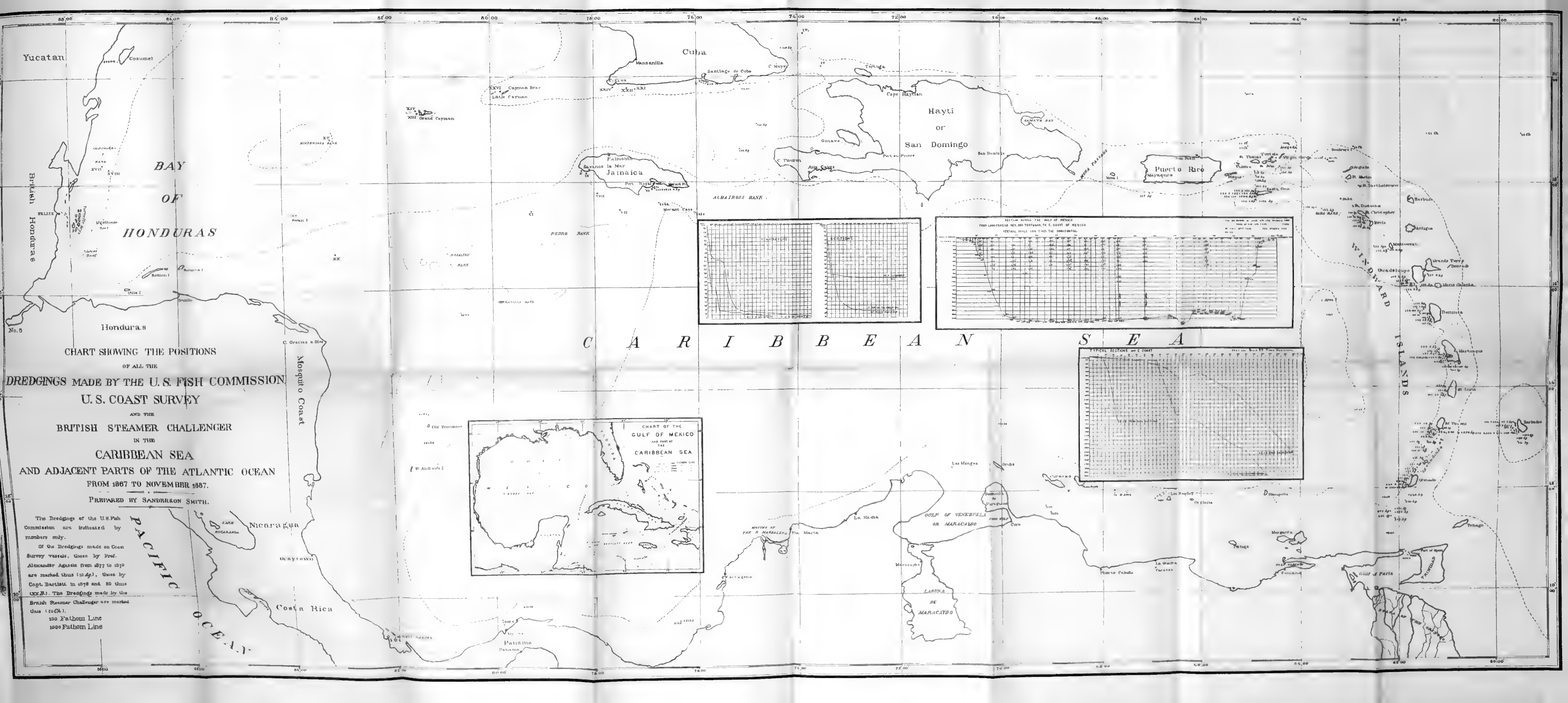
PREPARED BY SANDERSON SMITH.

The Dredgings of the U. S. Fish Commission are indicated by numbers only.
Of the dredgings made on Coast Survey vessels, those by L. F. Pourtales from 1867 to 1872 are marked thus (5.P.). Those by Prof. Alexander Agassiz from 1877 to 1879, thus (10.A.). Those by Dr. Wm. Stimpson in 1872 thus (20.S.). Those by Capt. Bartlett in 1878 and 80 thus (XXX).

100 Fathom Line ———
1000 Fathom Line ———
* 2100-60, 2310-60, 2020-07, 2-4.P., 190.P., 13.A. 10-15.A., 51-00.A., 71.A., 75.A., 73.A., 200-1.A. are just off Havana, 700.A. cannot be precisely placed. 1.P. is near 130.P. 60-77.P. are near 30-70.A. 118-8.P. are near 119.P. 140.P. is near 100-2.P. 140.P. is near 100-6.P. 140.P. is near 100.P. 100.P. is near 100.P. 100.P. cannot be definitely placed. 20-2.A. are near 100.P. 33-4.A. are near 100.P.



Alfred Petersen



Yucatan

BAY OF HONDURAS

Honduras

CHART SHOWING THE POSITIONS
OF ALL THE
DREDGINGS MADE BY THE U.S. FISH COMMISSION
U.S. COAST SURVEY
AND THE
BRITISH STEAMER CHALLENGER
IN THE
CARIBBEAN SEA
AND ADJACENT PARTS OF THE ATLANTIC OCEAN
FROM 1867 TO NOVEMBER 1887.
PREPARED BY SANDERSON SMITH.

The Dredgings of the U.S. Fish Commission are indicated by numbers only.
Of the Dredgings made on Coast Survey vessels, those by Prof. Alexander Agassiz from 1877 to 1878 are marked thus (1878), those by Capt. Bartlett in 1878 and 80 thus (1878). The Dredgings made by the British Steamer Challenger are marked thus (1880).
100 Fathom Line
1000 Fathom Line

PACIFIC OCEAN

Nicaragua

Costa Rica

XIV
XIII Grand Cayman

Cayman Brac
Little Cayman

Jamaica

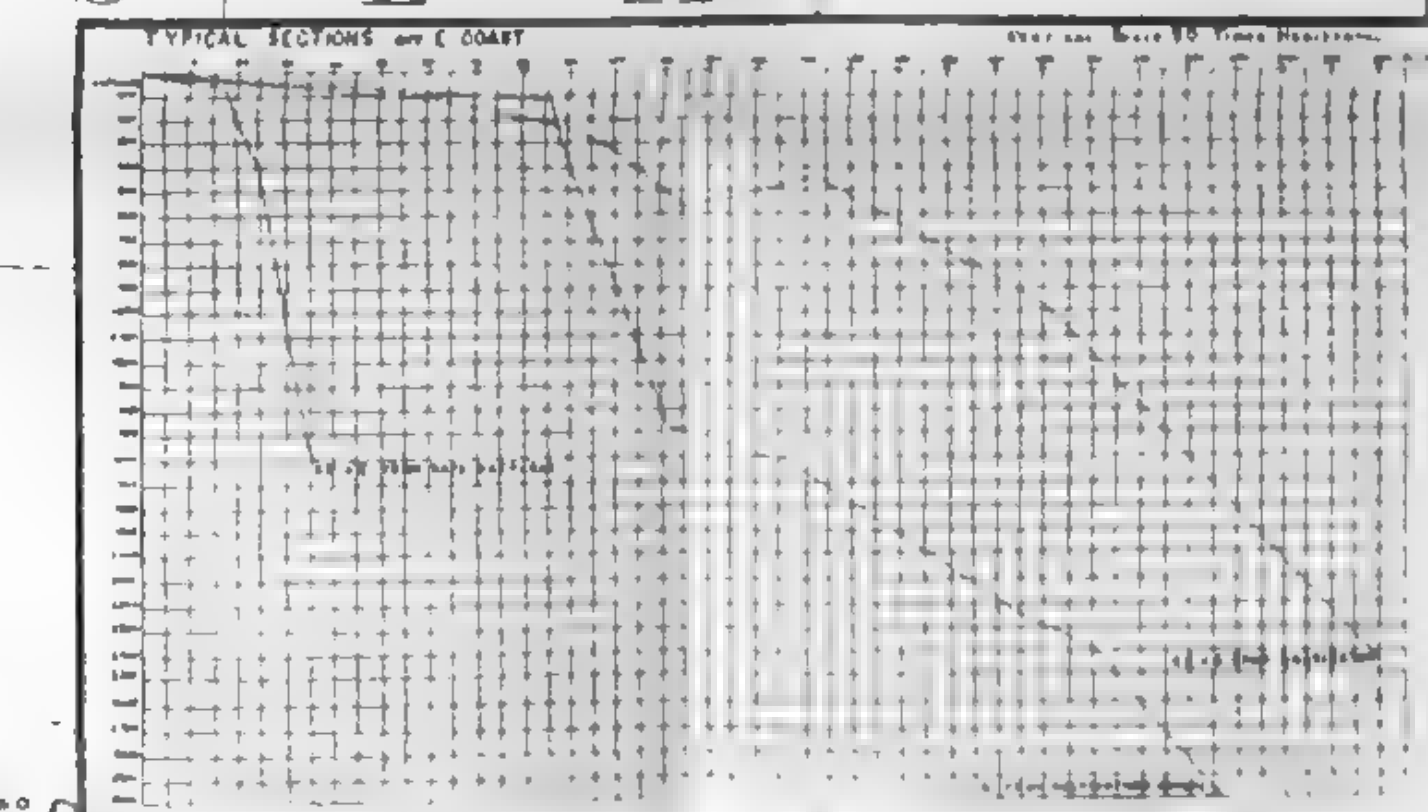
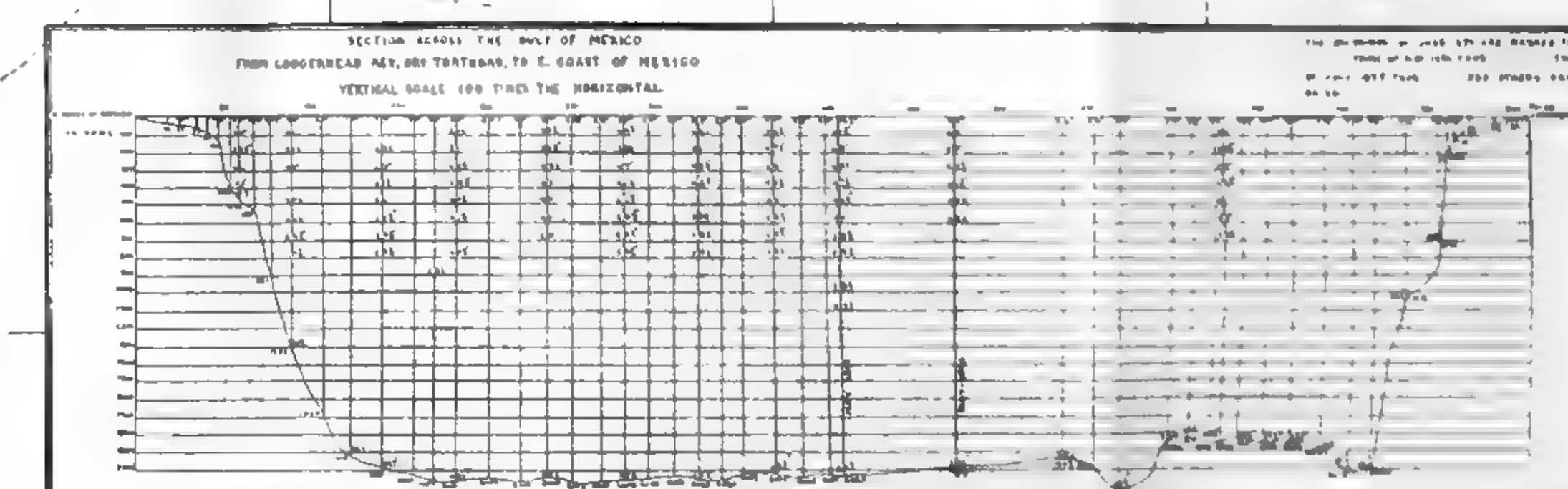
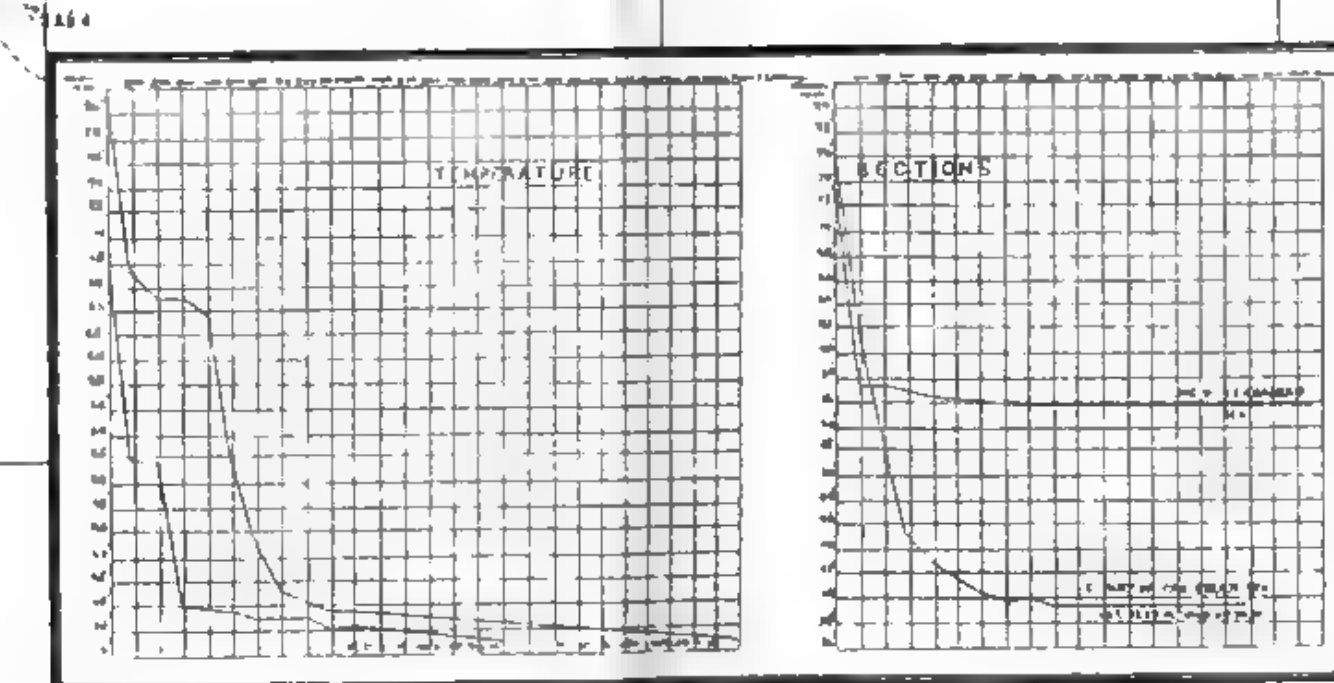
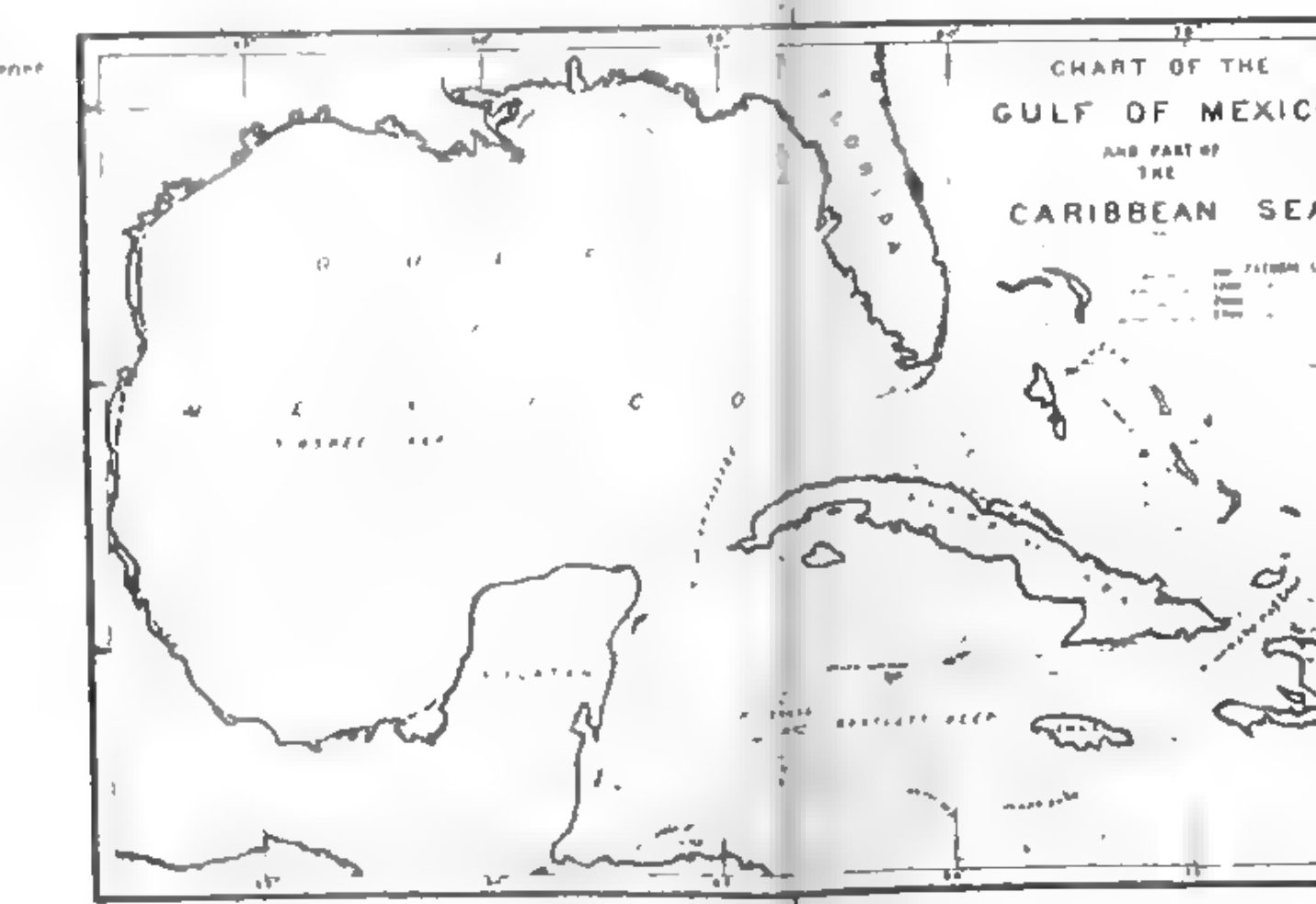
Cuba

Hayti
or
San Domingo

Puerto Rico

C A R I B B E A N S E A

WINDWARD ISLANDS

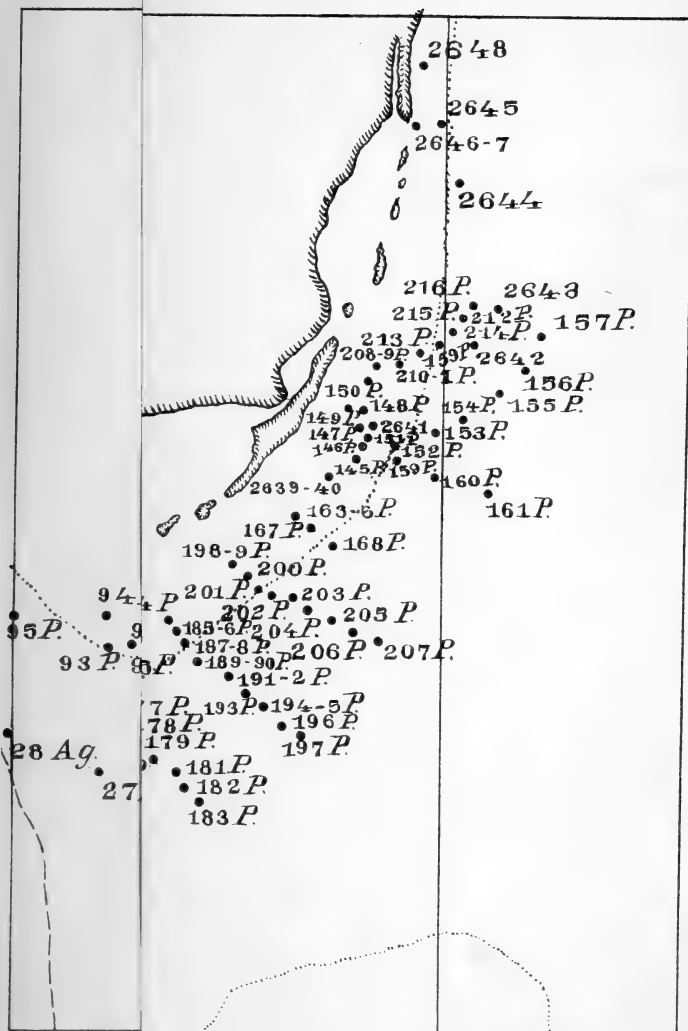


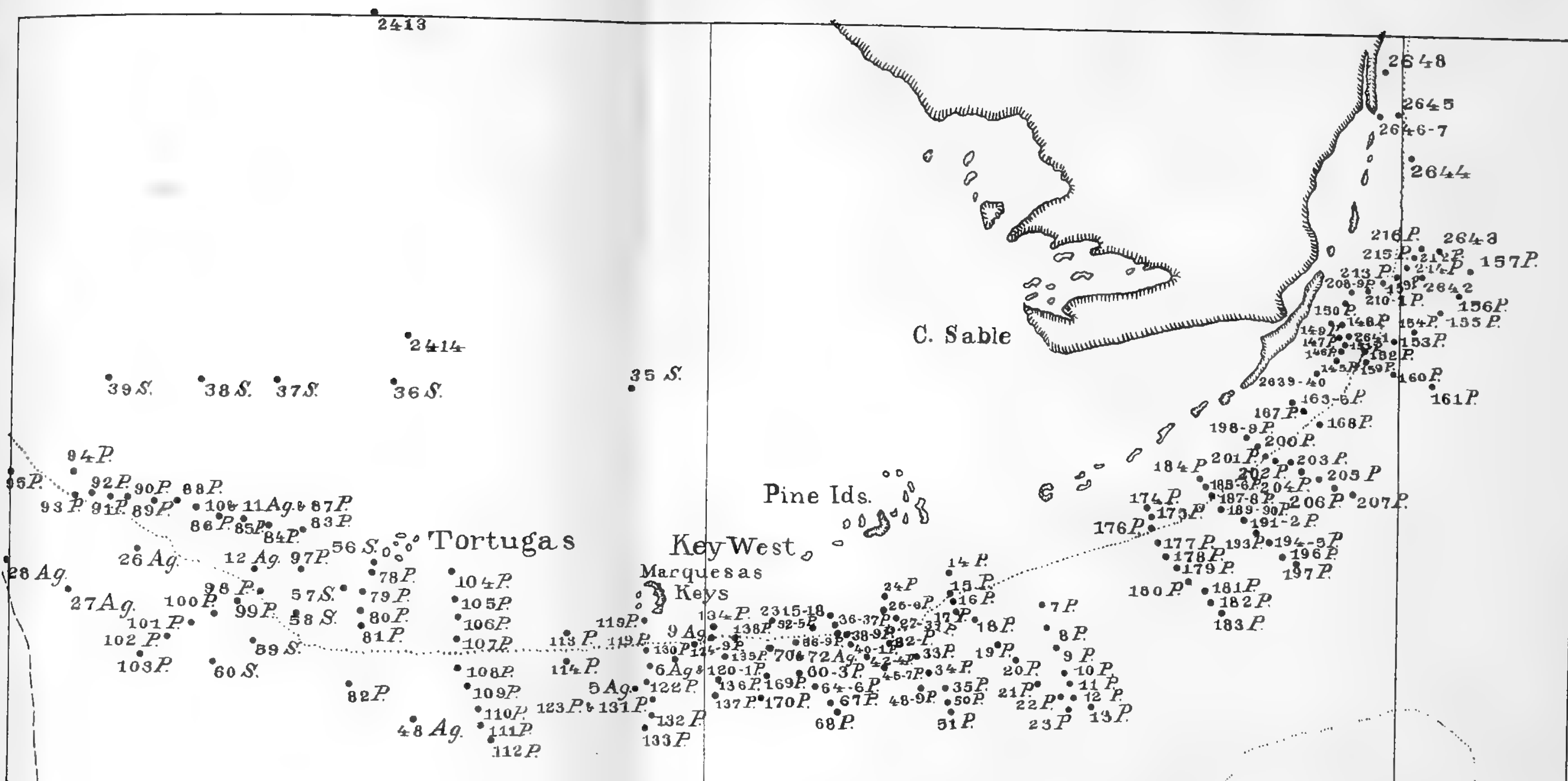
GULF OF VENEZUELA
OR MARACAYBO

LACUNA
DE
MARACAYBO

Gulf of Paria





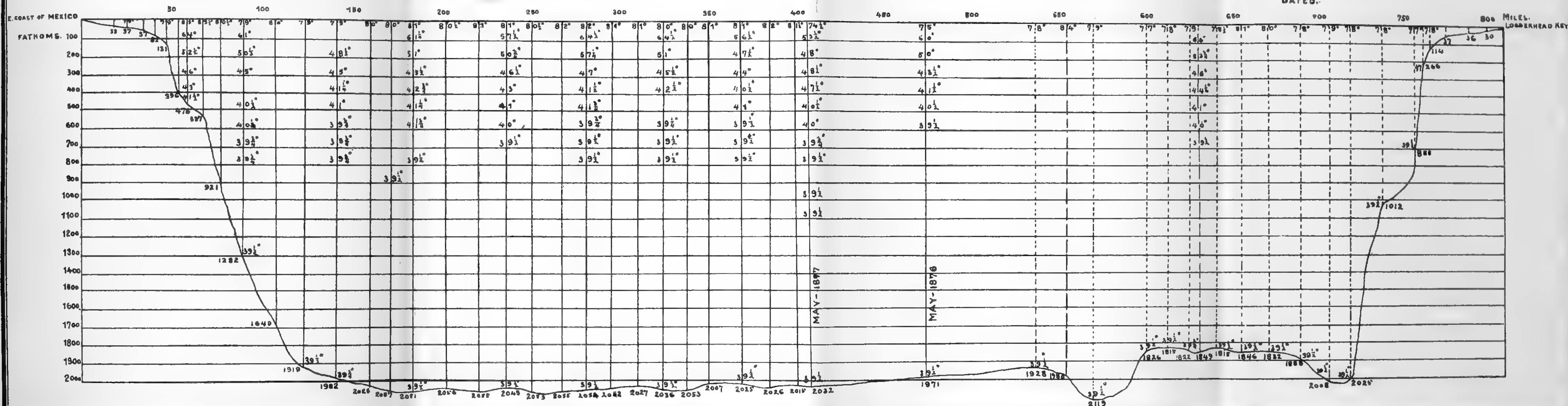




SECTION ACROSS THE GULF OF MEXICO
FROM LOGGERHEAD KEY, DRY TORTUGAS, TO E. COAST OF MEXICO.

VERTICAL SCALE 100 TIMES THE HORIZONTAL.

THE DREDGINGS OF JUNE 1877 ARE MARKED THUS
THOSE OF MAY 1875 THUS..... THOSE
OF JULY 1877 THUS..... THE OTHERS ARE
DATED.



027

008

07

001000 00 12000

001000 00 12000

001

002

003

004

005

006

007

008

009

010

011

012

013

014

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020

021

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025

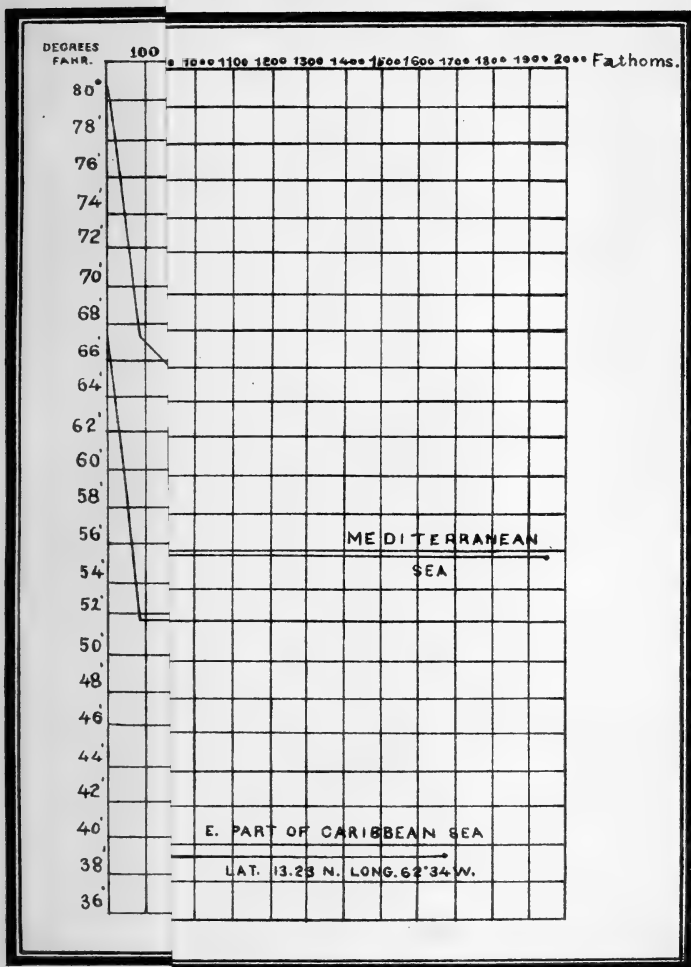
026

027

028

029

030



DEGREES
FAHR.

80°
78°
76°
74°
72°
70°
68°
66°
64°
62°
60°
58°
56°
54°
52°
50°
48°
46°
44°
42°
40°
38°
36°

100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 Fathoms.

TEMPERATURE

LAT. 37° 57' N. LONG. 72° 34' W.

N. LAT. 38° 18' 30. LONG. 68° 21' W.

DEGREES
FAHR.

80°
78°
76°
74°
72°
70°
68°
66°
64°
62°
60°
58°
56°
54°
52°
50°
48°
46°
44°
42°
40°
38°
36°

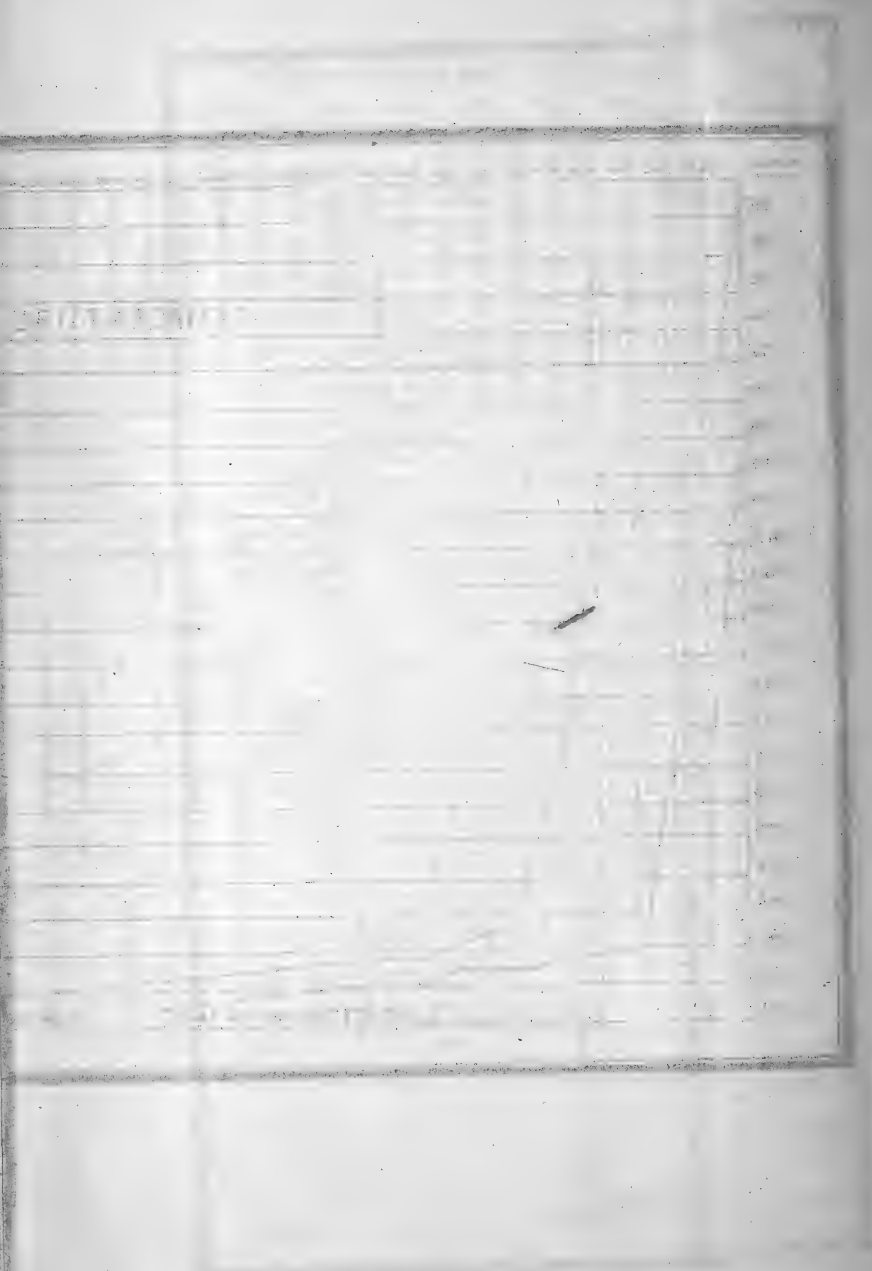
100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 Fathoms.

SECTIONS

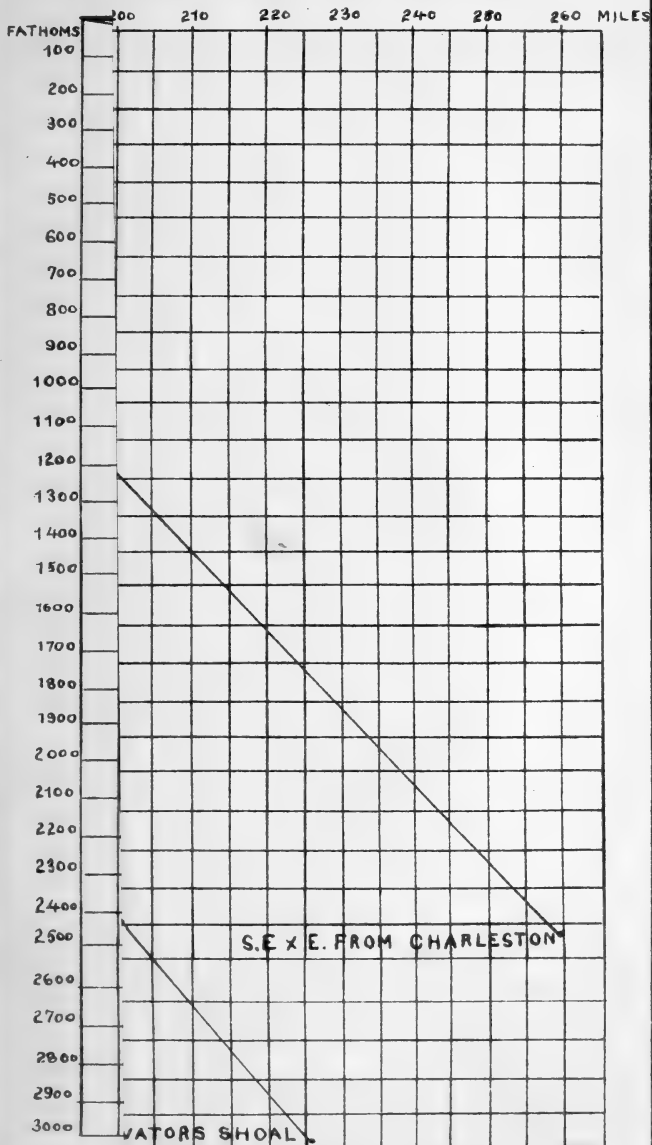
MEDITERRANEAN
SEA

E. PART OF CARIBBEAN SEA

LAT. 13.25 N. LONG. 68° 34' W.

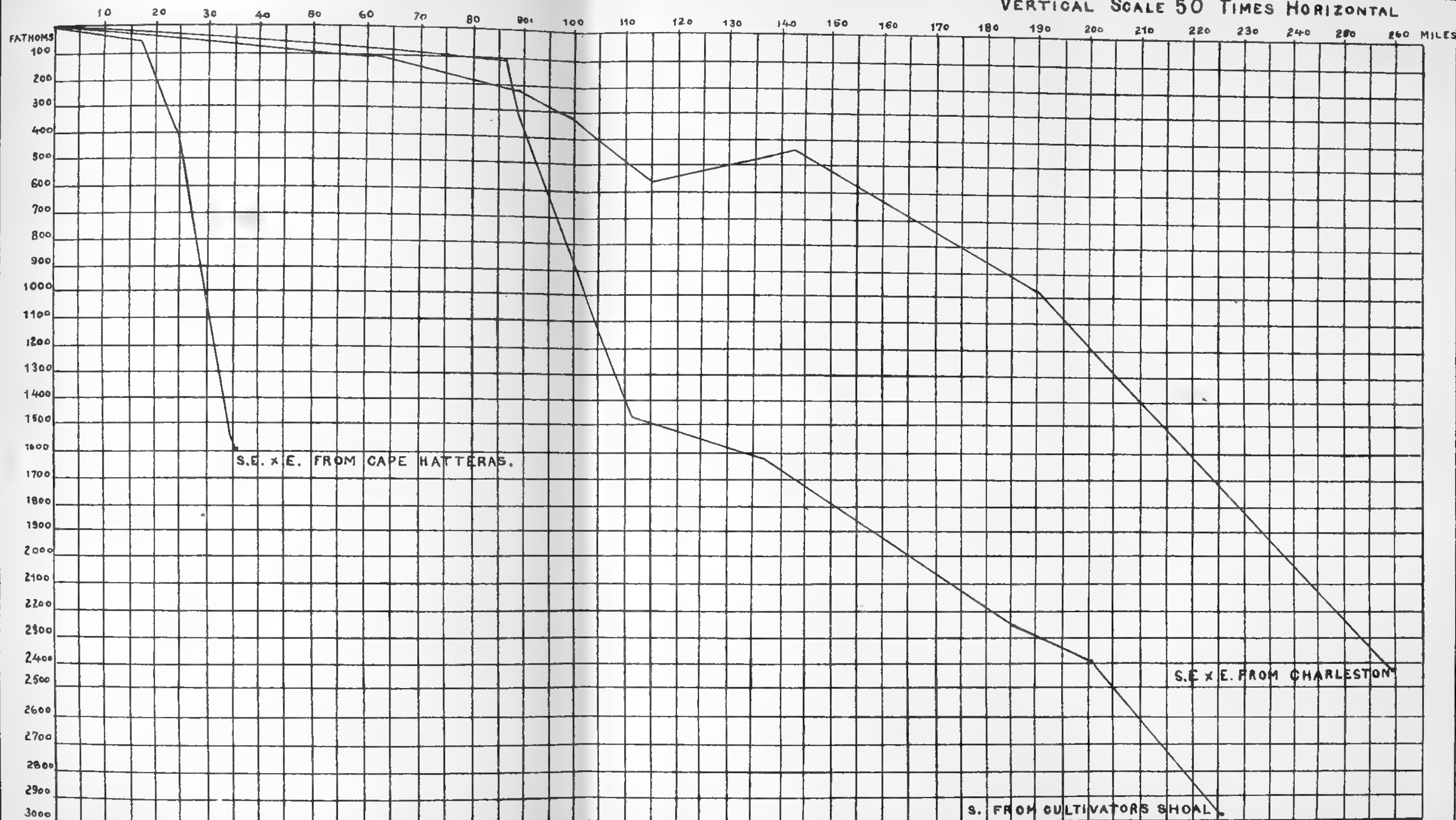


T SCALE 50 TIMES HORIZONTAL



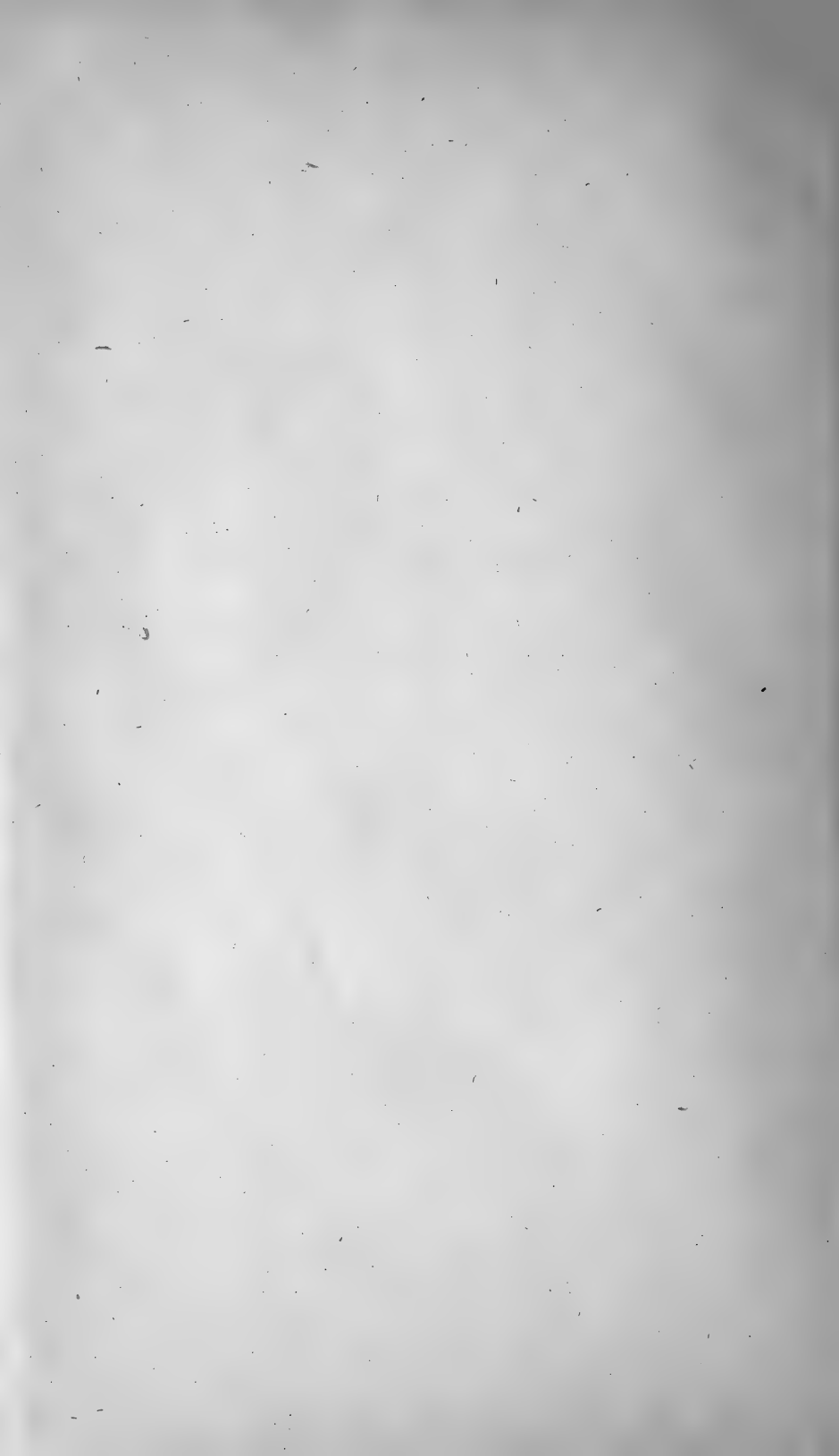
TYPICAL SECTIONS OFF E. COAST.

VERTICAL SCALE 50 TIMES HORIZONTAL



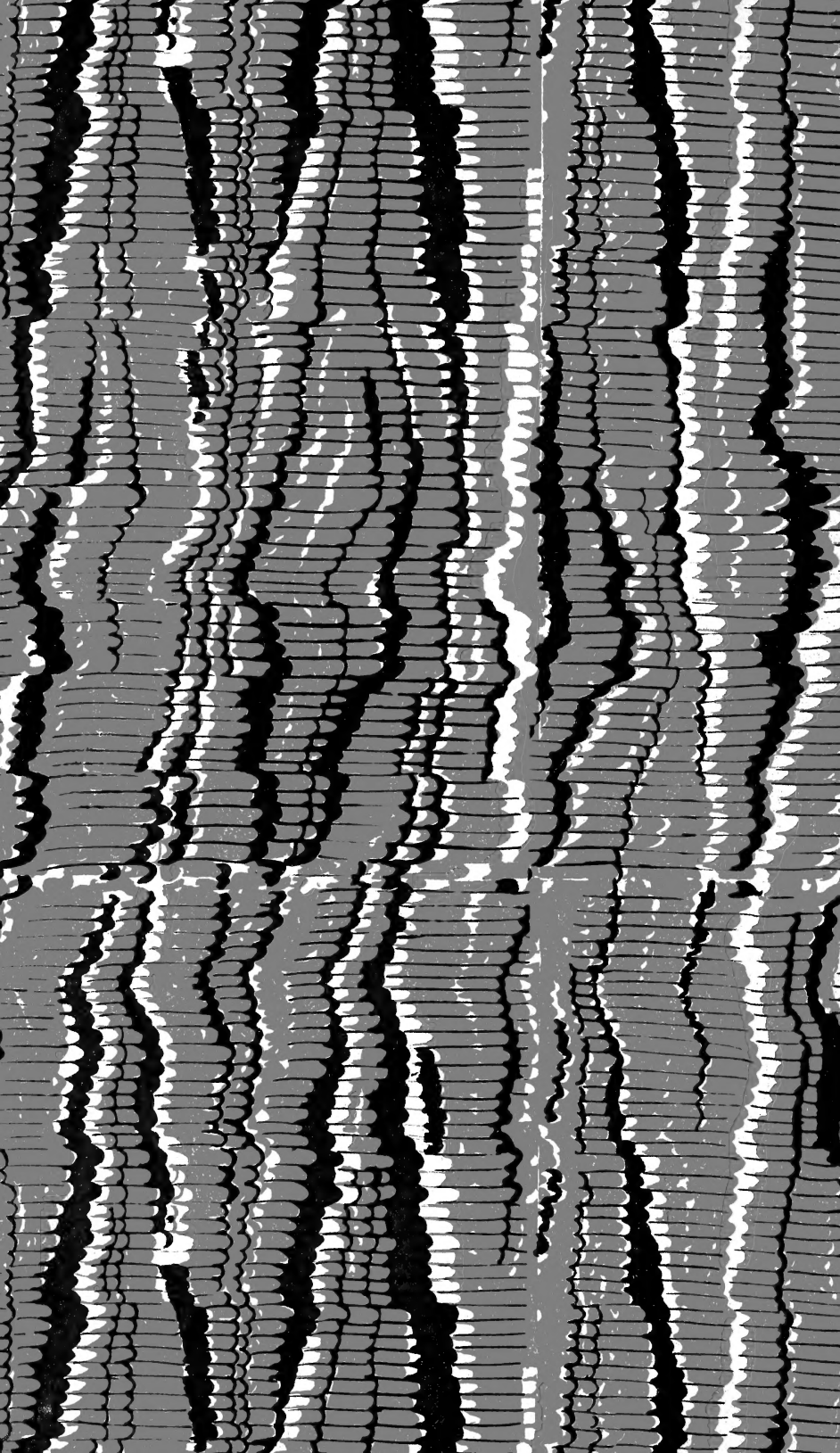


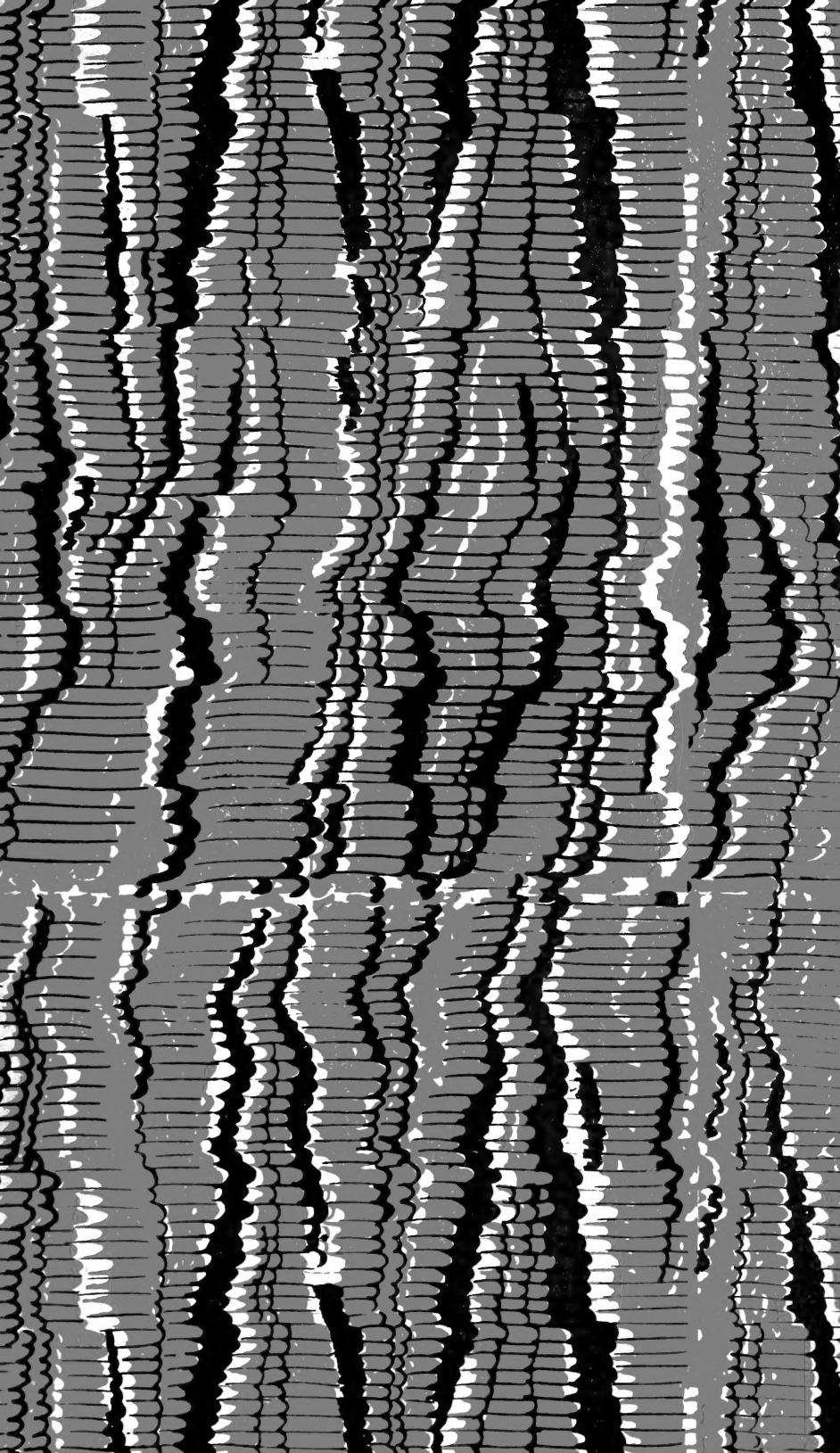












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